1.0 INTRODUCTION

1.1 SCOPE

1.1.1 This specification covers 9 point Data Processing Cardstock.

1.2 REFERENCES

1.2.1 Specification

IBM 894507	DP Cardstock, 9 Point

1.2.2 Quality Assurance Operating Procedures

IBM 1-03-02	Supplier Quality Requirements

1.2.3 Standard Test Methods

IBM 9-01-0201	Basis Weight
IBM 9-01-0202	Thickness
IBM 9-01-0203	Bursting Strength
IBM 9-01-0204	Stiffness
IBM 9-01-0205	Folding Endurance
IBM 9-01-0206	Folding Endurance After Aging
IBM 9-01-0207	Tearing Resistance
IBM 9-01-0208	Air Resistance
IBM 9-01-0209	Smoothness
IBM 9-01-0210	Sizing
IBM 9-01-0211	Per Cent Ash
IBM 9-01-0212	Acidity (PH)
IBM 9-01-0213	Coefficient of Friction
IBM 9-01-0214	Curl
IBM 9-01-0215	Moisture Content
IBM 9-01-0216	Expansion and Contraction
IBM 9-01-0217	Conductive Particles
IBM 9-01-0218	Resistance to Abrasion

1.3 AUTHORIZATION

1.3.1 This document is authorized by the Manager of IBM-IRD Quality Assurance Consumables.

1.4 PRECEDENCE

1.4.1 IBM-IRD Engineering Specifications and Drawings, or Purchase Orders will take precedence over this specification when there are conflicting requirements.

1.5 APPLICATIONS

1.5.1 This specification supplements the IBM-IRD Engineering Drawings and Specifications, but in no way absolves the supplier from meeting all drawing and specification or purchase order requirements.

2.0 REQUIREMENTS

2.1 MATERIAL

2.1.1 Shall be DP Cardstock - 9 Point and shall be a chemical woodpulp composition

2.2 COLOR

2.2.1 The material shall be natural and white, and shall conform to IBM Standard Colors.

2.3 DETAILED PHYSICAL & CHEMICAL PROPERTIES

2.3.1 The physical and chemical properties shall conform to the requirements of Table I unless otherwise specified samples of paper for test shall be conditioned and tested at standard conditions of 73 $\pm$ 3.5°F and 50 $\pm$ 2% relative humidity.

TABLE I: CHEMICAL AND PHYSICAL PROPERTIES

PROPERTY	UNIT	VALUES		TEST METHOD
		Min.	Max.	
Basis Weight 24" x 26", 500 Sheets	g/m²	204 ± 10		
	Pounds	125.0 ± 6.0		9-01-0201
Thickness	Inch	.0090 ± .0005		9-01-0202
	mm	.228 ± .013		
Bursting Strength	Lbs/Sq Inch	70		9-01-0203
Stiffness: Machine Direction	Taber Stiffness Units	30		9-01-0204
Cross Direction	Taber Stiffness Units	15		9-01-0204
Folding Endurance: Machine Direction	MIT Double Folds	100		9-01-0205
Cross Direction	MIT Double Folds	100		9-01-0205
Folding Endurance After Aging: Machine Direction	% of Original	25		9-01-0206

QUALITY SPECIFICATION

IBM IRD QUALITY ASSURANCE

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DATA PROCESSING

TABLE I: (con't)

PROPERTY	UNIT	VALUES Min.	VALUES Max.	TEST METHOD
Tearing Resistance:				
Machine Direction	Force in Grams	200		9-01-0207
Cross Direction	Force in Grams	200		9-01-0207
Air Resistance	Seconds (Gurley)	50	200	9-01-0208
Smoothness:				
Felt Side	Sheffield Units		125	9-01-0209
Wire Side	Sheffield Units		125	9-01-0209
Ash Content	Percent		2.0	9-01-0211
Hydrogen Ion Concentration	PH	5.0		9-01-0212
Coefficient of Friction: Static / Kinetic	Variance should not be more than 25% of static friction values.	.30	.45	9-01-0213
Curl (20% &75% RH): Top to Bottom	mm / Inches		3 / 0.120	9-01-0214

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TABLE I: (con't)

PROPERTY	UNIT	VALUES Min.	VALUES Max.	TEST METHOD
End to End	mm Inches		6,5 0.25	9-01-0214
Diagonal	mm Inches		6,5 0.25	9-01-0214
Moisture Content	% of Original	4.5	6.5	9-01-0215
Expansion (20% to 75% RH)				
Machine Direction	Percent		0.25	9-01-0216
Cross Direction	Percent		0.70	9-01-0216
Contraction (75% to 20% RH)				
Machine Direction	Percent		0.25	9-01-0216
Cross Direction	Percent		0.70	9-01-0216
Conductive Particles	Particles/ 100 lbs of Paper		20	9-01-0217
Resistance to Abrasion:				
Felt Side	Mg. loss/ 100 Revolutions		50	9-01-0218
Wire Side	Mg. loss/ 100 Revolutions		50	9-01-0218

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TABLE I: (con't)

PROPERTY	UNIT	VALVES		TEST METHOD
		Min.	Max.	
Sizing	Measured by writing, in ink, on cardstock. The writing shall be dry to touch within 10 seconds and the lines or characters shall be clear-cut, legible, and without excessive feathering or spreading. (Reference Test Method 9-01-0210)			

2.4 FINISHING REQUIREMENTS

2.4.1 Splices: Shall be butt splices without overlapping of the two ends. They shall be securely bonded with a 30 - 35 pound dark blue re-pulpable gummed kraft tape to both sides of the splice. The overall thickness at the splice shall not exceed .017". Clean cut holes about 1/4" in diameter shall be made on both sides of the gummed tape, within 2 inches of the splice and at intervals of not more than 3 1/3" web. The number of splices per roll shall not exceed [illegible]. Red flags are to be used at the splice location.

2.4.2 Defects: There shall be no "cut-outs". Defects up to 1" wide by 3" long can be left in the paper provided there are no ragged edges and the 1/4" diameter holes are punched outside the four corners of the defect.

2.4.3 Roll Width: Shall be 45 5/8 + 1/8 - 0, unless otherwise specified on Purchase Order.

2.4.4 Roll Diameter: Shall be 36" + 0" - 1", unless otherwise specified on Purchase Order.

2.4.5 Winding Tension: The roll shall be wound with good even tension to insure that (a) the roll is not crushed or flattened during shipment and (b) eliminate telescoping during the slitting operation.

2.4.6 Winding Direction: The wire side of the paper shall be wound face in on all rolls shipped to IBM.

2.4.7 Core: Core shall be a strong 5" inside diameter non-returnable fiber core with a 1/8" thick wall. It shall be smooth surfaced so as to leave no mark or wrinkle in the cardstock.

2.4.8 Spliced Rolls: Spliced rolls per carload shall not exceed five (5).

2.4.9 Workmanship: The material shall be uniform in quality on both sides, free from fuzz, holes, wrinkles, slime spots, brittle areas, mottle, and other defects that would prevent its use for the purpose intended.

3.0 QUALITY ASSURANCE PROVISIONS

3.1 LOT SIZE

All DP 9 Point Cardstock manufactured on one continuous vendor run and offered for acceptance. (Any major production stop, material/process change shall constitute a new lot.)

3.2 SAMPLING

As directed by the IBM-IRD Quality Assurance Department.

3.3 ACCEPT /REJECT CRITERIA

Shall be in accordance with the "Cardstock Rejection Procedure", dated 10/26/67. There shall be no action started without first notifying IRD HQ Procurement Services.

4.0 SUPPLIER REQUIREMENTS

4.1 The supplier shall conform to all the requirements specified in IBM 1-03-02.

5.0 PREPARATION FOR DELIVERY

5.1 PACKAGING AND PACKING

Each end of core to be fitted with a strong tight fitting plug with a 1" hole at the center of the plug. The wrapper of each roll shall be of such quality as to insure safe arrival of rolls and to contain a water vapor barrier.

5.2 MARKING

5.2.1 Two pre-numbered inventory tickets with corresponding IBM accounting cards will be furnished by IBM for each roll of paper ordered. Each ticket and the card shall show IBM roll number, gross weight, net weight, and class of paper. Cards are to be mailed to the Accounting Department of the IBM Plant placing the order. One ticket is to be inserted inside of core of roll. Other ticket is to be pasted on wrapper at end of the roll. An arrow pointing in the direction of the core end of the paper web shall

be stenciled on the wrapper at one end of the roll. A similar arrow is to be stenciled on the end of the roll inside the wrapper. The manufacturer's roll number as well as the lot number or date of manufacture is to be stenciled on the end of the roll inside of wrapper. The position on the paper machine at which the roll was produced is to be stenciled on the wrapper. Rolls of colored paper are to be identified by a band on the wrapper and stenciled marking as follows:

A Natural Color Stock - [illegible] wide band in natural color around the roll. Stencil "Post-card - White" in letters1 - 1/2 inches high in four places on the roll.

B White Stock - A 2 inch wide band in blue-white color around the roll. Stencil "Postcard-White" in letters 1 - 1/2" high in four places on the roll.

5.2.2 Spliced Roll Identification [illegible]: Wrappers must be marked so [illegible] storage. A black band around the circumference of the spliced roll is preferred by IBM. If circumferential labels stating "Spliced Roll" are used instead of a black band, the label shall be visible in all roll storage positions.

6.0 NOTES

6.1 INTENDED USE

This material is intended for use in the manufacture of Data Processing Cards for Data Processing machines.

6.2 ORDERING DATA

QUALITY SPECIFICATION

IBM IRD QUALITY ASSURANCE

7 Book	02 Volume	0201 Subject

Title: CARDSTOCK, 9 POINT, DATA PROCESSING

Procurement documents should specify the following:

A Title, Number, and Revision Level of this specification

B Place of Inspection

C Place of Delivery

Report on visit to IBM Deutschland, Böblingen on August 31, 1972

Mr. W. Stopper
Mr. H. Wuschack

P. B. Dunckel
R. O. Lofgren
W. Hofstetter

This was a courtesy visit paid in connection with our trip to Hummel.

The main points discussed

1. IBM are in process of testing a 150 g/m2 (92 lbs) sheet which we presume comes from Domtar. So far one roll will be tested and possibly 25 tons will follow. (I heard from another source meanwhile that the test will most likely not be conclusive).

2. Stopper/Wuschack would be interested to see samples of our various grades produced on PM 52.

3. IBM Sweden will be interested to purchase some 150 MT 9 pt White Cardstock for Ericssons Punch clocks. The quality should be suitable also for use on IBM 1287/8 OCR readers. Samples of our production will be sent to IBM for evaluation. Specifications attached (Velsen only).

4. Stopper + Wuschack will give us their assistance if we decide to produce OCR Bond. Wuschack has been on various OCR committees and he is best informed on the German standards (DIN).

5. We briefly touched on the problems of TB curl on glued specialty cards and blisters on white cardstock. These matters have however been dealt with Velsen direct.

W. Hofstetter

cc: R. O. Lofgren
W. E. Sinclair
B. van Schaagen
J. M. J. van Stiphout