

Government

Paper
Specification
Standards

March 2011 No. 12

Government

Paper Specification Standards

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Printed on recycled paper

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TO: HEADS OF DEPARTMENTS AND AGENCIES

As you know, the U.S. Government Printing Office (GPO) provides Federal agencies with highly valuable advice and assistance in obtaining their printing needs. One of the ways in which we provide this assistance is in the development and issuance of Government paper standards. The purpose of these standards is to (1) achieve compliance with relevant statutes regarding printing papers; (2) address environmental, workplace safety, and paper longevity issues; and (3) maximize savings in the Government's paper purchases and ultimately your print projects.

These standards comply fully with the intent of Pub. L. 94-580, the Resources Conservation and Recovery Act (RCRA), and Pub. L. 96-482, the Solid Waste Amendments of 1984, and associated Presidential Executive Orders. Where practicable, the standards meet or exceed the recommended guidance provided in the Environmental Protection Agency's (EPA) Comprehensive Procurement Guidelines program authorized by Congress under [section 6002 \(PDF\)](#) of RCRA. EPA is required to provide purchasing guidance and recommend recovered and postconsumer material content levels.

These paper standards are chemically neutral to the environment. In addition, they are formaldehyde-free in compliance with OSHA requirements, 29 CFR 1900.1048.

There are a number of different grades of paper that are included in these standards that allow creators of documents to preserve the Nation's history in paper format. The standards meet the intent of Pub. L. 101-423, National Policy on Permanent Papers.

These standards are available for use by all departments of the Government and their field offices. Some standards are specialty grades with limited availability and have been designated within the standard. Generally these stocks are procured as a *mill run* quantity. There is maximum flexibility in specifying color, texture, and recycled content.

The use of these standards will achieve the greatest possible savings in paper stocks for your agency's printing needs. Please do not hesitate to contact the Advisory Council on Paper Specifications or your GPO customer service representative with any suggestions you may have to improve this publication.

Sincerely,

WILLIAM J. BOARMAN
Public Printer

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INTRODUCTION

Each item of paper is identified by a paper code which indicates both class and grade. For example, *JCP A60*, the “A” refers to the class of *printing paper* and the 60 to the grade “**offset book**.” Similarly for *JCP L20*, “L” refers to *cover paper* class and 20 to the “**vellum-finish**” grade. The four-digit number associated with the FSC prefix is a General Services Administration Federal Supply Catalog designation and included when available.

The use of optical (fluorescent) brighteners is prohibited in those grades with 50% and 100% cotton/linen content as well as those papers specified for use in optical scanners.

There are 15 classes of papers listed in the table of contents. In a separate table, the archival/permanent paper grades and the minimum recycled and postconsumer fiber content for each grade are detailed.

This publication has been divided into four sections:

- (1) Part one consists of the 108 standards (including interim standards) authorized by the Joint Committee on Printing.
- (2) Definition of terms used in the standards and the test methods used in measuring the characteristics and properties of papers and paper boards are in Part two.
- (3) Information on the standard samples program, drawings of common envelop construction-types, and Government watermarks are found in Part three.
- (4) Part four provides statutory references for the setting of standards and the evaluation program for determining compliance of the paper standard.

The standards will be reviewed and republished on a 5-year cycle. The intent is for the member agencies of the Advisory Council on Paper Specifications to meet annually to review the Government’s paper standards.

Selected specifications are identified as Qualified Products. The procuring agency maintains a list of named products that have been previously evaluated and determined to meet the requirements of the standard.

Additionally, in January 2011, a collection of physical paper samples representing stocks that are most likely to be used in Federal print projects was re-issued by GPO. For assistance in selecting the proper paper stock, contact your GPO customer service representative.

RECYCLED CONTENT AND PERMANENT STANDARDS

<u>Paper Code</u>	<u>Paper Grades</u>	<u>Permanent or Alkaline Paper Option</u>	<u>Minimum PC Content</u>	<u>Total Recycled Content</u>
<u>Printing Paper</u>				
A10	Newsprint.		40	
A25	Heat-Set Web Offset Machine-Finish Book.		30	
A50	Machine-Finish Book End.	x	30	
A55	Heat-Set Web Offset Book (in-plant paper standard).		30	
A60	Offset Book.	x	30	
A61	No. 1 Offset Book Smooth-Finish.	x	30	
A63	Offset Book, Colored.		30	
A65	Light-Weight Uncoated Groundwood Paper.		40	
A70	100% Recycled Offset Book.		50	100
A72	Flexural Offset Book.		30	
A75	Light-Weight Offset Book (Bible Paper).	x		
A80	Opacified Offset Book.	x	30	
A90	Vellum-Finish Book, White & Colored.	x	30	
A91	Smooth & Fancy-Finish Text, White & Colored.	x	30	
A95	Hi-Bulk Offset (Return Mailer).		30	
A100	Antique Book.		30	
A110	50% Antique Book.		30	50
A120	50% Laid-Antique Book.		30	50
A150	Uncoated Vegetable-Fiber Book.			
A160	Coated One-side Text (C1S).		10	
A170	Litho (Gloss) Coated Book.		10	
A175	(Publication Grade) Gloss Coated Book.		10	
A180	Litho (Gloss) Coated Book.		10	
A181	No. 1 Coated Text, Gloss-Finish.		10	
A182	No. 2 Coated Text, Gloss-Finish.		10	
A205	Litho (Gloss) Coated Book.		10	
A220	Water-Resistant (Text) Book.		30	
A230	High Yield Coated Opaque Offset.		10	
A235	(Publication Grade) Matte Coated Book.		10	
A240	Matte Coated Offset Book.		10	
A250	Laid-Finish Book, White & Colored.		30	
A260	Dull Coated Offset Book.		10	
A261	No. 1 Coated Text, Dull-Finish.		10	
A262	No. 2 Coated Text, Dull-Finish.		10	
A270	Uncoated Permanent Book, White and Cream White (Archival Quality).	x	30	
<u>Writing Paper</u>				
D10	Writing, White & Colored.		30	
D11	Smooth & Fancy-Finish Writing Bond, White & Colored.		30	
D50	100% Fine Writing.			100

<u>Paper Code</u>	<u>Paper Grades</u>	<u>Permanent or Alkaline Paper Option</u>	<u>Minimum PC Content</u>	<u>Total Recycled Content</u>
<u>Map Paper</u>				
E10	50% Map, Lithographic-Finish.		.	50
E20	High Wet-Strength Map, Lithographic-Finish.		10 or 20	
E30	Offset Map, Lithographic-Finish.		30	
E40	Chemical Wood Map, Lithographic-Finish.		20	
E50	50% Chart, Lithographic-Finish.			50
<u>Manifold Paper</u>				
F10	Manifold, White & Colored	x		
F30	25% Glazed Manifold			25
<u>Bond Paper</u>				
G05	Chemical Wood Forms Bond, White & Colored.		30	
G10	Bond.		30	
G15	Recycled Forms Bond, White & Colored.		30	50
G16	Recycled Forms Bond, Natural Shade.		30	50
G40	25% Bond, White & Colored (Archival Quality).	x	30	
G45	Recycled 25% Bond, White & Colored.		30	50
G50	25% Translucent Bond.			25
G60	25% Opacified Bond (Archival Quality).	x	30	
G65	Recycled 25% Opacified Bond White & Colored.		30	50
G70	50% Bond.		30	50
G80	100% Bond.			100
<u>Parchment Paper</u>				
H10	100% Parchment Deed.			100
H20	Cream White 100% Artificial Parchment.			100
H30	Imitation Parchment Laser-Finish, White, Natural White, & Colored.	x	30	
H40	Cream White Diploma Paper, Smooth-Finish.	x	30	
<u>Ledger Paper</u>				
J10	Ledger, White & Colored.	x	30	
J20	25% Ledger.		30	
J30	100% Ledger.			100
<u>Index Paper</u>				
K10	Index, White & Colored.	x	20	
K20	25% Index, White & Colored.		20	25
K30	Cream White 100% Index.			100
<u>Cover Paper</u>				
L10	Litho (Gloss) Coated Cover.		10	
L11	No. 1 Coated Cover, Gloss-Finish.		10	
L12	No. 2 Coated Cover, Gloss-Finish.		10	

<u>Paper Code</u>	<u>Paper Grades</u>	<u>Permanent or Alkaline Paper Option</u>	<u>Minimum PC Content</u>	<u>Total Recycled Content</u>
L20	Vellum-Finish Cover, White & Colored.		30	
L21	Smooth & Fancy-Finish Cover, White & Colored.		30	
L23	Offset Cover.		30	
L24	Vellum-Bristol Cover, White & Colored.		30	
L40	Laid-Finish Cover, White & Colored.		30	
L50	Matte Coated Cover.		10	
L60	Dull Coated Cover.		10	
L61	No. 1 Coated Cover, Dull-Finish.		10	
L62	No. 2 Coated Cover, Dull-Finish.		10	
L70	Coated One Side Cover (C1S).		10	
L80	Cast Coated Cover.		10	
<u>Kraft Paper</u>				
N10	No. 2 Kraft.		5	
<u>Miscellaneous Paper</u>				
O-10	Gummed, Conventional Adhesive.			
O-25	Optical Character Recognition (OCR) Bond.			
O-26	Optical Mark Read (OMR) Bond, White, Violet or Gray.			
O-27	Optical Mark Sense Scanner (OMSS) Bond.			
O-60	Plain Copier, Xerographic, White, & Colored (Archival Quality).	x	30	
O-61	High Quality Xerographic Copier, Laser Printer.			
O-63	Plain Copier, Xerographic, Laser Printer, Colored.		30	
O-65	Plain Copier, Xerographic, White & Colored.		30	
O-70	100% Recycled Plain Copier, Xerographic.		50	100
O-80	Carbonless Bond.		30	
O-90	Printable Plastic Film (Synthetic Paper).			
O-91	Uncoated (Tear Resistant) Synthetic Paper			
<u>Tag Board</u>				
P10	High-Finish Manila Tag.		20	
P20	High-Finish Folder Stock, Natural & Colored.		50	
<u>Cardboard</u>				
Q20	Railroad Board, White & Colored.		15	80
Q50	Chemical Wood Board, Colored.			50
Q80	High-Finish Red Wallet Board.		20	
<u>Miscellaneous Board</u>				
R10	Pressboard, Colored (Type III).		20	50
R11	Pressboard, Colored (Type I).		20	50
R20	Newsboard.		80	
R30	Book Cover Board.		80	

<u>Paper Code</u>	<u>Paper Grades</u>	<u>Permanent or Alkaline Paper Option</u>	<u>Minimum PC Content</u>	<u>Total Recycled Content</u>
V10	Light-Brown (Kraft Shade) Envelope		20	
V20	Writing Envelope, White & Colored		30	
V40	25% Bond Envelope			25
V90	TYVEK™ Envelope		25	

Part 1.

SPECIFICATIONS

Sizing: Paper shall be surface- and internal-sized suitable for satisfactory printing on both sides of the paper on high-speed heat-set web presses equipped with low VOC dampening systems.

For **Basis weight:** 25 by 38 inches, 500 sheets (pounds), the following tensile strength applies for roll paper stock.

	35	40	50	60	70	80
--	----	----	----	----	----	----

Tensile strength: Average not less than (kg/in) for the machine direction (MD) and cross direction (CD) —

MD ...	6.4	6.4	9.0	9.7	10.5	11.5
CD ...	2.6	3.1	3.6	4.1	4.6	5.1

Pick resistance: *Sheet-fed:* Average each side not less than 13-A Dennison wax number for sheets sizes exceeding 17 by 22 inches; 10-A for sheet sizes 17 by 22 inches or less.

Web offset paper: Average each side not less than 10-A. No individual specimen shall average less than 11-A, 8-A and 8-A, respectively.

Curl: Paper shall lie flat with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

Surface: Shall be free from lint, fuzz, or any particles which will pick, lift, fluff, or pile on the blanket under normal press conditions.

Size and trim: *Sheets:* Paper shall be furnished in the sizes(s) ordered and shall be flat, trimmed square on four sides with clean smooth edges, and evenly jogged. The tolerance of $\pm 1/16$ inch shall be allowed except for sheets 8-1/2 by 14 inches or less; then a tolerance of $\pm 1/32$ inch shall be allowed. Successive sheets within any package shall not differ from each other by more than 1/64 inch. Paper with the long dimension 32 inches or less shall be considered square if the variation does not exceed 1/32 inch; over 32 inches, 1/16 inch.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above.

VOC = Volatile organic compounds; refers to organic chemical compounds which have significant vapor pressures and can affect the environment and human health.

Rolls: Roll width and diameter shall be as ordered. A tolerance of $\pm 1/16$ inch shall be allowed for width and 1 inch for diameter.

Roll winding: Roll paper shall be tightly wound at even tension and shall not contain more than the specified maximum number of splices per roll. The number of splices permitted per roll is determined by the roll diameter as ordered. On rolls 40 inches or less, a maximum of three splices per roll shall be allowed. On rolls over 40 inches, a maximum of four splices per roll shall be allowed. Splices shall be neatly and securely overlap-pasted and made with a repulpable adhesive which will not permit the splice to separate while passing through a drying oven maintained at 200 °C. The adhesive may be applied from a tape form backing, provided the backing is removed, leaving only the adhesive component of the splice. The adhesive shall not cause the splice to adhere to adjacent laps. The tails of the splices shall be neatly and evenly removed without damage to adjacent laps. Splices shall be flagged at both ends with projecting colored markers, not pasted to the splice or otherwise clearly marked.

Grain: Direction of the grain on flat paper shall be as ordered.

Color: Shall match the Government’s standard sample for color. A deviation of $DE(CIELAB) = 0.5$ from the color standard is allowed. As appropriate the CIELAB values (Ill D65, 10° observer) for the color standard will be specified in the solicitation. The common color standards are found in Part 3.

The paper in the order (or publication) shall be uniform and the color variation shall not exceed $DE(CIELAB) = 1.0$.

Pressroom conditions: The bulk of this paper will be used in air-conditioned pressrooms maintained at 24 °C ± 2 °C and 45% $\pm 8\%$ relative humidity.

¹ Previously these requirements were “below the line” and prefaced with the statement: “Unless otherwise specified, the following is automatically waived when printing or duplicating is to be accomplished on commercial contract.”

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For minimum quality face and back offset printing of catalogs, pamphlets, newsletter, newspapers, etc., of a non-permanent nature. Printed matter may include text, line illustrations and 65-line screen halftones. A mill run grade.

Stock: *Not less than 40% postconsumer fiber. Any percent over 40 percentage points are encouraged, provided that the requirements of this Standard are met.*

Basis weight: 24 by 36 inches,
500 sheets (pounds)..... 25 28 30 32
A tolerance of $\pm 5\%$ shall be allowed.

Tensile strength: Average machine
direction (kg/in) 3.9 4.5 5.0 5.5

Tearing strength: Average each
direction not less than (grams)..... 18 20 22 24

Opacity: Average not less than
(percent) 87 89 90 91

No individual specimen shall average
less than (percent) 85 87 88 89

Thickness: Average (mils) 2.8 3.0 3.2 3.5
A tolerance of ± 0.0005 inch shall be allowed. Paper shall
be uniform and shall not vary more than 0.0004 inch from
edge to edge.

General appearance: Paper shall conform to the standard
sample(s) established by the Government.

Brightness: Shall target 53% or as specified.

Color: The paper in the order (or publication) shall be
uniform and the color variation shall not exceed
DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: Shall match the Government standard.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance
criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For simultaneous face and back, blanket to blanket, web offset printing of books, pamphlets, catalog, periodicals, etc. Low bulk. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: Ground woodpulp not to exceed 1%. The total lignin content of the paper shall not exceed 3% of the fiber weight.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than ... 6.5

Basis weight: 25 by 38 inches, 500 sheets (pounds) 35
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 11

Opacity: Average not less than (percent) 84
No individual specimen shall average less than (percent) 82

Thickness: Average (mils) 2.2
A tolerance of ± 0.0003 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

No individual specimen shall exceed (mils) 2.8

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For end leaves of bound books, some of which may be printed by the offset process. Printed matter may include line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: Ground woodpulp not to exceed 10%.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches, 500 sheets
(pounds) 80
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average each direction
not less than (M.I.T. double folds) 30

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 72% $\pm 2\%$ or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

OPTION

Alkaline paper. This option is for products requiring above average permanence. Replace / add the properties below in the basic standard above.

Stock: 100% bleached chemical woodpulp.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 7.0. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation from requirement is sufficient cause for rejection of the paper.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For simultaneous face and back, web offset printing of books, pamphlets, catalog, folders, circular, etc. The 40-pound stock may not be suitable for solid reverses or heavy halftones. Printed matter may include text, line illustrations and halftones up to 150-line screen. Slitting and pasting and/or cross perforating are included in press capabilities.

Stock: Ground woodpulp not to exceed 1%. The total lignin content of the paper shall not exceed 3% of the fiber weight.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than ... 6.5

Sizing: Paper shall be surface- and internal-sized suitable for satisfactory printing on both sides of the paper on high-speed heat-set web presses equipped with low VOC dampening systems.

Basis weight: 25 by 38 inches,
500 sheets (pounds)..... 40 50 60 70 80
A tolerance of $\pm 5\%$ shall be allowed.

Tensile strength: Average not less than—
Machine direction (kg/in) 6.4 9.0 9.7 10.5 11.5
Cross direction (kg/in) 3.1 3.6 4.1 4.6 5.1

Bursting strength: Average not less than (lb/in²) 13 15 18 22 25

Opacity: Average not less than (percent) 86 89 91 92 94
No individual specimen shall average less than (percent) 84 87 89 90 92

Thickness: Average (mils)..... 3.0 3.9 4.7 5.5 6.3
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

VOC = Volatile organic compounds; refers to organic chemical compounds which have significant vapor pressures and can affect the environment and human health.

Pick resistance: Average each side not less than 10-A Dennison wax number
No individual specimen shall average less than 8-A Dennison wax number

Surface: Shall be free from lint, fuzz, or any particles which will pick, lift, fluff, or pile on the blanket under normal press conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0. A deviation of DE(CIELAB) = 0.5 from the color standard is allowed.

For information, the CIELAB values (Ill D65, 10° observer) of the color standard are

$$L^* = 93.3$$

$$a^* = 1.0$$

$$b^* = -2.0$$

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Pressroom conditions: The bulk of this paper will be used in air-conditioned pressrooms maintained at 24°C $\pm 2^\circ\text{C}$ and 45% $\pm 8\%$ relative humidity.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back multicolor offset printing of books, pamphlets, catalog, folders, circular, etc. The 40-pound stock may not be suitable for solid reverses or heavy halftones. The 80-pound paper is for use in printing posters and similar work and not for books, pamphlets and the like. Printed matter may include text, line illustrations and halftones up to 150-line screen.

Stock: Ground woodpulp not to exceed 1%. The total lignin content of the paper shall not exceed 3% of the fiber weight.

Note¹: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than ... 6.5

Basis weight: 25 by 38 inches,
500 sheets (pounds)..... 40² 50 60 70 80
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 13 15 18 22 25

Opacity: Average not less than (percent) 86 89 91 92 94
No individual specimen shall average less than (percent) 84 87 89 90 92

Thickness: Average (mils)..... 3.0 3.9 4.7 5.5 6.3
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted above.

¹ Alternatively, the ordering agency may specify a more environmentally-preferable paper by including specific language in the solicitation and/or adjusting the **Stock** requirement for higher postconsumer fiber content and/or total “recycled” fiber content.

² This weight may not be readily available in less than mill run quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For highest quality face and back offset printing of books, pamphlets, folders, etc. Lower bulk. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: 100% chemical pulp.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches,
500 sheets (pounds)..... 50 60 70 80
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 21 25 29 33

Opacity: Average not less
than (percent) 92 93 94 95
No individual specimen
shall average less than
(percent) 90 91 92 93

Thickness: Average (mils) ... 3.5 4.1 4.9 5.5
A tolerance of ± 0.0003 inch shall be allowed. Paper shall

be uniform and shall not vary more than 0.0004 inch from edge to edge.

Smoothness: Average each side not to exceed
(Sheffield units) 140

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 83% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform with a smooth-finish.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

OPTION

Alkaline paper. This option is for products requiring above average permanence. Replace / add the properties below in the basic standard above.

Stock: 100% bleached chemical woodpulp.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points, is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 7.0. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The “precision requirements” of the acceptance criteria in Part 4 shall apply except as noted in the specification.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For face and back multicolor offset printing of books, pamphlets, folders, circulars, etc., light colors suitable for printing solid reverses or heavy halftones. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches,
500 sheets (pounds)..... 50¹ 60 70 80
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not
Less than (lb/in²) 16 19 22 25

Opacity: Average not less than
(percent) 90 92 93 94
No individual specimen shall
average less than (percent) ... 88 90 91 92

Thickness: Average (mils) ... 3.9 4.7 5.5 6.3
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0. The color shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Note: This property is automatically waived when the ordering agency has specified a sheet with "fibers" or "specks" in the paper surface.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Color: For a tight color match, designate a "precision" match in the solicitation. If no designation is specified, the "regular" acceptance criterion will be applied in judging the acceptability of the color match between the standard and supply paper stock for hue, chroma, and saturation.

¹ This weight may not be readily available in less than mill run quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing of books, pamphlets, catalog, periodicals, etc. of a non-permanent nature. Low bulk. Printed matter may include text, line illustrations and halftones up to 120-line screen. A mill run grade.

Stock: *Not less than 40% postconsumer fiber. Any percent over 40 percentage points are encouraged, provided that the requirements of this Standard are met.*

Basis weight: 24 by 36 inches, 500 sheets
(pounds) 35
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than
(lb/in²) 11

Opacity: Average not less than (percent) 88
No individual specimen shall average less
than (percent) 86

Thickness: Average (mils) 2.6
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 70% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish: Paper shall have an English-finish.

Formation: Shall be uniform.

Cleanliness: Shall match the Government standard.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For minimum quality face and back offset printing of books, pamphlets, catalog, folders, circulars, open forms, etc. of a non-permanent nature. Printed forms are suitable for execution with ball point and felt tip pens. Low brightness may be specified and the stock may contain foreign or “dirt” particles embedded in the paper surface. Printed matter may include text and line illustrations.

Stock¹: *Not less than 100% total recovered fiber of which at least 50% shall be postconsumer fiber. Any percent over 50 percentage points are encouraged, provided that the requirements of this Standard are met.*

Basis weight: 25 by 38 inches, 500 sheets
(pounds) 40² 45² 50² 60 70 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength:
Average not less than (lb/in²) 2 13 15 18 21 24 30

Opacity: Average not less than (percent) 87 88 90 92 94 95 96
No individual specimen shall average less than (percent) 85 86 88 90 92 93 94

Thickness: Average (mils) 3.0 3.5 4.0 4.8 5.6 6.4 8.8

A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Note: This property is automatically waived when ruling and writing quality is not a requirement of the paper's intended use.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

¹Alternatively, the ordering agency may specify a more environmentally-preferable paper by including specific language in the solicitation and/or adjusting the **Stock** requirement for higher postconsumer fiber content.

²These weights may not be readily available in less than mill run quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For minimum quality face and back offset printing of catalogs, pamphlets, newsletter, newspapers, etc., of a non-permanent nature. Printed matter may include text, line illustrations and halftones up to 120-line screen. Particularly suited for adhesive bound publications capable of laying flat when in an open position. A mill run grade.

Stock: Not to exceed 75% ground woodpulp; the remainder chemical pulp.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches, 500 sheets (pounds)..... 27 35
A tolerance of $\pm 5\%$ shall be allowed.

Stiffness (flexibility): Average cross direction not to exceed (milligrams) 40 40

Bursting strength: Average not less than (lb/in²) 9 11

Opacity: Average not less than (percent) 84 84

No individual specimen shall average less than (percent) 82 82

Thickness: Average (mils)..... 2.4 2.7
A tolerance of +0.0002 inch and -0.0004 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall be not less than 59% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: Shall match the Government standard.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing of books, pamphlets, catalog, folders, circulars, etc. Low bulk. Printed matter may include text, line illustrations, and halftones up to 150-line screen. A mill run grade.

Stock: 100% bleached chemical pulp.
*Note*¹: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches, 500 sheets
(pounds) 30
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than
(lb/in²) 15

Opacity: Average not less than (percent) 88
Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Thickness: Average (mils) 2.1
A tolerance of +0.0001 inch and -0.0002 inch shall be allowed.

Smoothness: Average each side
(Sheffield units) 90 to 60

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

OPTION

Alkaline paper. This option is for products requiring above average permanence. Replace / add the properties below in the basic standard above.

Stock: 100% bleached chemical woodpulp.
Note: Postconsumer fiber, in any percentage, is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 7.0. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted in the specification.

¹This is a specialty grade with low Government usage. A postconsumer fiber content for this grade is not practicable for cost and technological reasons.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For high quality multicolor face and back offset printing of books, pamphlets, folders, etc. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: Ground woodpulp not to exceed 1%. The total lignin content of the paper shall not exceed 3% of the fiber weight.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches,
500 sheets (pounds)..... 40¹ 50¹ 60
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 16 20 25

Opacity: Average not less than (percent) 89 91 93
No individual specimen shall average less than (percent) 87 89 91

Thickness: Average (mils) 3.0 3.9 4.7
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target not less than 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

OPTION

Alkaline paper. This option is for products requiring above average permanence. Replace / add the properties below in the basic standard above.

Stock: 100% bleached chemical woodpulp.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points, is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 7.0. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation from requirement is sufficient cause for rejection of the paper.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted in the specification.

¹ These weights may not be readily available in less than mill run quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality face and back offset printing of books, pamphlets, folders, etc. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: Ground woodpulp not to exceed 1%.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches,
500 sheets (pounds)..... 50¹ 60 70 80
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 19 23 27 31

Opacity: Average not less than (percent) 92 93 94 95
No individual specimen shall average less than (percent) 90 91 92 93

Thickness: Average (mils)... 4.3 5.1 5.9 6.7
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish: Paper shall have a vellum-finish.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

OPTION

Alkaline paper. This option is for products requiring above average permanence. Replace / add the properties below in the basic standard above.

Stock: 100% bleached chemical woodpulp.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 7.0. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation from requirement is sufficient cause for rejection of the paper.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted in the specification.

Color: For a tight color match, designate a “precision” match in the solicitation. If no designation is specified, the “regular” acceptance criterion will be applied in judging the acceptability of the color match between the standard and supply paper stock for hue, chroma, and saturation.

¹This weight may not be readily available in less than mill run quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For higher quality multicolor face and back offset printing of books, pamphlets, brochures, etc. Printed matter may include text, line illustrations, and halftones up to 150-line screen and solid reverses on the smooth-finish stock. Standard allows for unique finishes for special print requirements.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches, 500 sheets (pounds) 70 80 100
 A tolerance of $\pm 5\%$ shall be allowed.

Tearing strength: Average each direction not less than (grams)..... 25 28 35

Opacity: For white paper only, average not less than (percent) 94 95 97
 No individual specimen shall average less than (percent) 92 93 95

Thickness: For the smooth-finish stock, average (mils) 5.5 6.3 7.9
 A tolerance of ± 0.0003 inch shall be allowed for the 70- and 80-pound stock; ± 0.0005 inch for the 100-pound stock. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target 88% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish: Paper shall have a smooth-finish or as specified (linen, leatherette, felt, etc.)

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

OPTION

Alkaline paper. This option is for products requiring above average permanence. Replace / add the properties below in the basic standard above.

Stock: 100% bleached chemical woodpulp.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 7.0. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted in the specification.

Color: For a tight color match, designate a “precision” match in the solicitation. If no designation is specified, the “regular” acceptance criterion will be applied in judging the acceptability of the color match between the standard and supply paper stock for hue, chroma, and saturation.

Cleanliness: The requirement is automatically waived when the ordering agency specifies a paper with fibers or specks in the paper surface.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing of return mailers. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses. Grade complies with the U.S. Postal Service minimum caliper (thickness) requirement for return mailers.

Stock: Ground woodpulp not to exceed 1%.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches, 500 sheets
(pounds) 70
A tolerance of $\pm 10\%$ shall be allowed.

Bursting strength: Average not less than
(lb/in²) 19

Opacity: Average not less than (percent) 91
No individual specimen shall average less than (percent) 89

Thickness: Average not less than (mils) 7.0
Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Note: Any specimen averaging less the 0.0070 inch shall be sufficient cause for rejection of the paper.

Porosity: Average not to exceed (seconds) 25

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 79% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted in the specification.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face and back offset printing of books, pamphlets, folders, brochures, etc. Has a rough, soft finish, particularly suited for publications with extensive reading matter. High bulk. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: Ground woodpulp not to exceed 1%.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than 6.5

Basis weight: 25 by 38 inches,
500 sheets (pounds)..... 45 60 70
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 13 18 21

Opacity: Average not less than (percent) 89 91 94
No individual specimen shall average less than (percent) 87 89 92

Thickness: Average (mils) 3.9 5.1 5.9
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 72% $\pm 2\%$ or as specified.
Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.
Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face and back offset printing of books, catalogs, pamphlets, etc. requiring above average durability and permanence. Has a rough, soft finish particularly suited for publications with extensive reading matter. High bulk. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: Not less than 50% cotton or linen fibers. Ground woodpulp not to exceed 1%.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible, provided the increase in reflectance measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 6.5

Basis weight: 25 by 38 inches, 500 sheets (pounds) .. 40
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) ... 13

Opacity: Average not less than (percent) 89
No individual specimen shall average less than (percent) 87

Thickness: Average (mils) 3.5
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 72% $\pm 2\%$ or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face and back offset printing of pamphlets, brochures, invitations, programs, etc., requiring attractive appearance and/or above average durability and above average permanence. Has a rough, soft finish with decorative chain marks running at right angles to the laid lines. High bulk. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: Not less than 50% cotton or linen fibers. Ground woodpulp not to exceed 1%.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible, provided the increase in reflectance measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 6.5

Basis weight: 25 by 38 inches, 500 sheets (pounds) .. 70
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 19

Opacity: Average not less than (percent) 90
No individual specimen shall average less than (percent) 88

Thickness: Average (mils) 5.5
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Chain marks: Shall run parallel to machine direction of the sheet and match the standard sample.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 72% $\pm 2\%$ or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish: Paper shall have a laid-finish.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing of books, pamphlets, folders, etc. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses. This is environmentally-preferable paper of which fifty percent of the fiber content is a renewable fiber.

Stock: Not less than 50% chemical vegetable fiber pulp not woodpulp; the remainder chemical pulp.

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Note: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches,
500 sheets (pounds)..... 50 60 70
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less
than (lb/in²) 15 18 22

Opacity: Average not less than
(percent) 89 91 92
No individual specimen shall
average less than (percent) 87 89 90

Thickness: Average (mils).... 3.9 4.7 5.5
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target not less than 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted in the specification.

¹ This is a specialty grade is a specialty sheet and available in limited quantities. Postconsumer fiber content for this grade is not practicable for cost and technological reasons.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face and back offset printing of posters, envelopes, etc. Printed matter may include text, line illustrations, halftones up to 150-line screen and solids. Coated side is for 4-color process printing.

Stock: Free from ground and unbleached woodpulp.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches, 500 sheets 60 70 80 100
A tolerance of +5% shall be allowed.

Tearing strength: Average each direction not less than (grams) 40 50 55 60

Opacity: Average not less than (percent) 90 91 92 94
No individual specimen shall average less than (percent)..... 88 89 90 92

Thickness: Average (mils) 3.2 3.9 4.5 5.2
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Gloss of coated side (75°): Average not less than (percent)..... 60

Smoothness of coating: Average not to exceed (Sheffield units) 55

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness of coated side: Average not less than 85% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall NOT apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face and back offset printing of books, pamphlets, magazines, periodicals, catalogs, brochures, folders, circulars, etc. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: *Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.*

Acidity: Average pH value of coating not less than 6.5.

Basis weight: 25 by 38 inches, 500 sheets
(pounds) 50 60
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less
than (lb/in²) ... 11 13

Opacity: Average not less than (percent).... 91 92
No individual specimen shall average less
than (percent) 89 90

Thickness: Average not less than (mils) 2.6 3.0
A tolerance of ± 0.0005 inch shall be allowed. Paper shall
be uniform and shall not vary more than 0.0004 inch from
edge to edge.

Gloss (75°): Average each side not less than
(percent) 50

Smoothness: Average each side not to exceed
(Sheffield units) 65

General appearance: Paper shall conform to the standard
sample(s) established by the Government.

Brightness: Average not less than 79% or as specified.

Color: The paper in the order (or publication) shall be
uniform and the color variation shall not exceed
DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly
applied; shall not be gritty, mottled, stippled, or ribbed in
appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall
not exceed 100 specks per square meter. No sample sheet
(600 to 650 cm² in size) shall contain more than one defect
with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance
criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing. Grade suited for long run of books, pamphlets, magazines, periodicals, brochures, etc. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: *Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.*

Basis weight: 25 by 38 inches, 500 sheets (pounds) .. 38
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) ... 11

Opacity: Average not less than (percent) 89
No individual specimen shall average less than (percent) 87

Thickness: Average (mils) 2.2
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Gloss (75°): Average each side not less than (percent) 40

Smoothness of coating: Average each side not to exceed (Sheffield units) 65

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 70% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality multicolor face and back printing of books, pamphlets, magazines, periodicals, brochures, etc. Printed matter may include text, line illustrations and halftones up to 175-line screen.

Stock: Ground woodpulp, not to exceed 1%.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: Average pH value of the coating not less than 6.5.

Basis weight: 25 by 38 inches, 500 sheets
(pounds) 60¹ 70 80
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than
(lb/in²) 13 20 30

Opacity: Average not less than (percent) . 92 93 94
No individual specimen shall average less than (percent) 90 91 92

Thickness: Average (mils) 3.0 3.3 3.6
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Gloss (75°): Average each side not less than (percent) 50

Smoothness: Average each side not to exceed (Sheffield units) 55

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply excepted as noted in the specification.

¹ This weight is available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For highest quality multicolor face and back offset printing of books, pamphlets, magazines, periodicals, brochures, etc. Printed matter may include text, line illustrations and halftones up to 200-line screen.

Stock: Free from ground or unbleached woodpulp.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: Average pH value of the coating not less than 6.5.

Basis weight: 25 by 38 inches, 500 sheets
(pounds) 70 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 20 30 40

Opacity: Average not less than (percent) 94 95 96
No individual specimen shall average less than (percent) 92 93 94

Thickness: Average (mils) 3.3 3.7 4.3
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Gloss (75°): Average each side not less than (percent) 65

Smoothness: Average each side not to exceed (Sheffield units) 45

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 86% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 25 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall NOT apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For higher quality multicolor face and back offset printing of books, pamphlets, magazines, periodicals, brochures, etc. Printed matter may include text, line illustrations and halftones up to 200-line screen.

Stock: Free from ground or unbleached woodpulp.

Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: Average pH value of the coating not less than 6.5.

Basis weight: 25 by 38 inches, 500 sheets (pounds) 70 80 100
 A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 21 31 40

Opacity: Average not less than (percent) 94 95 96
 No individual specimen shall average less than (percent) 92 93 94

Thickness: Average (mils) 3.3 3.7 4.3
 A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Gloss (75°): Average each side not less than (seconds) 60

Smoothness: Average each side not to exceed (Sheffield units) 55

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 84% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 50 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall NOT apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face and back offset printing, principally of maps and charts, covers for books, etc. Good folding endurance. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: Free from ground and unbleached woodpulp.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches, 500 sheets (pounds) .. 70
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average each direction not less than (MIT double folds) 100
Note: Precision Part 4 applies for this property.

Bursting strength: Average not less than (lb/in²) ... 29

Opacity: Average not less than (percent) 93
No individual specimen shall average less than (percent) 91

Thickness: Average, not less than (mils)..... 3.7
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Gloss (75°): Average each side not less than (percent). 50

Smoothness: Average each side not to exceed (Sheffield units) 65

Blocking: Sheets shall not stick together after being wet with water then allowed to dry in contact with other sheets of the same paper.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 50 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face and back offset printing of books, pamphlets, manuals, etc. requiring water-resistant properties. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: Ground or unbleached chemical woodpulp, singly or mixed not to exceed 5%; the remainder bleached chemical pulp. The use of melamine-formaldehyde or any mater that releases formaldehyde into the atmosphere at concentration of 0.1 part per million or greater shall not be permitted in the manufacture of this paper.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 4.7.

Basis weight: 25 by 38 inches, 500 sheets
(pounds)..... 60
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than
(Dry, lb/in²) 30
(Wet, lb/in²) 13

Opacity: Average not less than (percent) 90
No individual specimen shall average less than
(percent) 88

Thickness: Average (mils) 4.1

A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Water resistance: Average each side not less than (seconds) 60

Smoothness: Average each side (Sheffield units) 110 to 60

Blocking: Sheets shall not stick together after being wet with water than allowed to dry in contact with other sheets of the same paper.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 72% $\pm 2\%$ or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing of books, pamphlets, folders, etc. Light coating provides a better print quality. Good yield. Printed matter may include text, line illustrations and light halftones. A mill run grade.

Stock: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches, 500 sheets (pounds)... 35 38 40 45 50
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 11 12 13 15 16

Opacity: Average, not less than (percent) 86 87 88 90 91
No individual specimen shall average less than (percent) ... 84 85 86 88 89

Thickness: Average (mils).. 3.0 3.1 3.2 3.6 4.0
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Gloss (75°): Average each side (units) 5 to 25

Smoothness: Average each side not to exceed (Sheffield units) 150

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 79% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The “precision” requirements of the acceptance criteria in Part 4 shall apply.

Coating: This grade has at least 3 pounds of coating per side; request a certification from the supplier as to the type and amount of coating used in manufacturing the paper.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing of books, pamphlets, folders, etc. Printed matter may include text, line illustrations and light halftones. Grade suited for long runs. A mill run grade.

Stock: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 25 by 38 inches,
 500 sheets (pounds) 40 50 60 70
 A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
 not less than (lb/in²) 8 11 15 25

Opacity: Average not less
 than (percent) 91 91 92 93
 No individual specimen shall
 average less than (percent) ... 89 89 90 91

Thickness: Average (mils) .. 2.5 3.1 3.7 4.3
 A tolerance of ± 0.0005 inch shall be allowed. Paper shall
 be uniform and shall not vary more than 0.0004 inch from
 edge to edge.

Gloss (75°): Average each side (units) 10 to 25

Smoothness: Average each side not to exceed
 (Sheffield units) 120

General appearance: Paper shall conform to the standard
 sample(s) established by the Government.

Brightness: Average not less than 79% or as specified.

Color: The paper in the order (or publication) shall be
 uniform and the color variation shall not exceed
 DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly
 applied; shall not be gritty, mottled, stippled, or ribbed in
 appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall
 not exceed 100 specks per square meter. No sample sheet
 (600 to 650 cm² in size) shall contain more than one defect
 with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance
 criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For multicolor face and back offset printing of maps, books, pamphlets, periodicals, brochures, etc., and for high quality reproduction of satellite and high altitude imagery. Printed matter may include text, line illustrations, halftones up to 175-line screen and reproduction of continuous-tone imagery by a random dot process.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: Average pH value of the coating not less than 6.5.

Basis weight: 25 by 38 inches,
500 sheets (pounds) 60¹ 70 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance²: Average each
direction not less than
(MIT double fold) 20 20 20 20

Bursting strength: Average not
less than (lb/in²) 15 25 35 40

Opacity: Average not less than
(percent) 93 94 95 96
No individual specimen shall
average less than (percent) ... 91 92 93 95

Thickness: Average (mils) ... 3.7 4.3 4.9 5.5
A tolerance of ± 0.0005 inch shall be allowed. Paper shall
be uniform and shall not vary more than 0.0004 inch from
edge to edge.

Gloss (75°): Average each side not to exceed
(percent) 25

Smoothness: Average each side not to exceed
(Sheffield units) 120

Oil holdout: There shall be no oil penetration at 200
seconds on either side of the sheet.

*Note: Any deviation in this requirement is sufficient cause
for rejection of the paper.*

General appearance: Paper shall conform to the standard
sample(s) established by the Government.

Brightness: Average not less than 82% or as specified.

Color: The paper in the order (or publication) shall be
uniform and the color variation shall not exceed
DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly
applied; shall not be gritty, mottled, stippled, or ribbed in
appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall
not exceed 100 specks per square meter. No sample sheet
(600 to 650 cm² in size) shall contain more than one defect
with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance
criteria in Part 4 shall apply except as noted above.

Coating: This grade is a “fully” coated sheet with at least 5 pounds of coating per side. As appropriate, request a certification
from the supplier as to the type and amount of coating used in the manufacturing the paper.

¹ This weight is available in limited quantities.

² This property is automatically waived if the end product is not a map or map-like document.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For high quality multicolor face and back offset printing of pamphlets, brochures, invitations, programs, etc., requiring attractive appearance. Has a rough, soft finish with decorative chain marks running at right angles to laid lines. High bulk. Printed matter may include text, line illustrations, and halftones up to 150-line screen.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than 6.5 for white paper and 5.0 for colored paper.

Basis weight: 25 by 38 inches, 500 sheets
(pounds)..... 70 80
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than
(lb/in²) 19 22

Opacity: Average not less than (percent).. 91 93
No individual specimen shall average less
than (percent) 89 91

Thickness: Average (mils) 6.5 7.5
A tolerance of ± 0.0005 inch shall be allowed. Paper shall
be uniform and shall not vary more than 0.0004 inch from
edge to edge.

Chain marks: Shall run parallel to machine direction of the sheet and match the standard sample.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall have a target brightness not less than 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish: Paper shall have a laid-finish.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Color: For a tight color match, designate a “precision” match in the solicitation. If no designation is specified, the “regular” acceptance criterion will be applied in judging the acceptability of the color match between the standard and supplied paper stock for hue, chroma, and saturation.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face and back offset printing of books, pamphlets, periodicals, brochures, etc. and for high quality reproduction of satellite and high altitude imagery. Printed matter may include text, line illustrations, halftones up to 175-line screen and reproduction of continuous-tone imagery by a random dot process. Low glare, suited for heavy text.

Stock: Ground woodpulp not to exceed 1%.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: Average pH value of the coating not less than 6.5.

Basis weight: 25 by 38 inches, 500 sheets
(pounds) 60¹ 70 80
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 15 25 35

Opacity: Average not less than (percent) 93 94 95
No individual specimen shall average less than (percent) 91 92 93

Thickness: Average (mils) ... 3.0 3.5 4.1
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Gloss (75°): Average each side (percent) 25 to 40

Smoothness: Average each side not to exceed (Sheffield units) 60

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted above.

¹ This weight is available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For highest quality multicolor face and back offset printing of books, pamphlets, magazines, periodicals, brochures, etc. Low glare. Printed matter may include text, line illustrations and halftones up to 200-line screen.

Stock: Free from ground or unbleached woodpulp.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: Average pH value of the coating not less than 6.5.

Basis weight: 25 by 38 inches, 500 sheets
(pounds) 70 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 25 35 45

Opacity: Average not less than (percent)..... 94 95 96
No individual specimen shall average less than (percent)..... 92 93 94

Thickness: Average (mils) 3.5 4.1 4.7
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Gloss (75°): Average each side not less than (percent) 30 to 50

Smoothness: Average each side not to Exceed (Sheffield units) 50

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 86% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 25 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall NOT apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For higher quality multicolor face and back offset printing of books, pamphlets, magazines, periodicals, brochures, etc. Low glare. Printed matter may include text, line illustrations and halftones up to 200-line screen.

Stock: Free from ground or unbleached woodpulp.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: Average pH value of the coating not less than 6.5.

Basis weight: 25 by 38 inches, 500 sheets
(pounds) 70 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 25 35 45

Opacity: Average not less than (percent)..... 94 95 96
No individual specimen shall average less than (percent)..... 92 93 94

Thickness: Average (mils) 3.5 4.1 4.7
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Gloss (75°): Average each side not less than (percent) 25 to 45

Smoothness: Average each side not to exceed (Sheffield units) 60

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 84% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 50 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall NOT apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing of books, pamphlets, etc. requiring the highest degree of permanence (archival quality.) Printed matter may include text, line illustrations and halftones up to 150-line screen.

Stock: 100% bleached chemical woodpulp.
Note: Any deviation from requirement is sufficient cause for rejection of the paper.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 7.5. The composition of the filler shall include not less than 2.0% calcium carbonate.
Note: Any deviation from requirement is sufficient cause for rejection of the paper.

Basis weight: 25 by 38 inches,
500 sheets (pounds)..... 30 40 50 60 70
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average
each side not less than
(MIT double folds) 30 30 30 30 30
Note: Any deviation from requirement is sufficient cause for rejection of the paper.

Tearing strength: Average each
direction not less (grams) 25 33 40 50 60

Opacity: Average not less than
(percent) 84 86 89 91 92
No individual specimen shall
average less than (percent) 82 84 87 89 90

Thickness: Average (mils) 2.2 3.0 3.9 4.7 5.5
A tolerance of ± 0.0003 inch shall be allowed for the 30- and 40-pound stocks and ± 0.0005 inch for the 50-, 60- and 70 pound. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

General appearance: Paper shall conform to the standard sample(s) established by the Government.
Brightness: Shall target 81% for the white shade and 72 $\pm 2\%$ for the cream white or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.
Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The “precision” requirements of the acceptance criteria in Part 4 shall apply except as noted above.

ANSI/NISO: Conformance to the standard Z39.48—1992 (www.niso.org) permits the printing of the infinity symbol (∞) in the document or publication. Prior-to-production testing of the paper is recommended.

¹ This is a specialty grade and available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For face and back offset printing. The 12-pound paper is used on open forms, including multiple copies, one side only. The 16-pound and heavier are used in printing books, pamphlets, catalog, open forms, etc. Printed matter may include text, line illustrations and ruled forms. Halftones and reverse prints may be included on the 20-pound paper.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches,
500 sheets (pounds)..... 12 16 18 20
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average
each direction not less
than (MIT double fold) 7 8 8 9

Opacity²: Average not less than
(percent) na 83 84 85
No individual specimen shall
average less than (percent) ... na 81 82 83

Thickness: Average (mils) .. na 3.0 na 3.8
A tolerance of ± 0.0004 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Writing quality: Characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 79% or as specified.

Color³: The paper shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Formation: Shall be uniform.

Cleanliness²: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Color: For a tight color match, designate a “precision” match in the solicitation. If no designation is specified, the “regular” acceptance criterion will be applied in judging the acceptability of the color match between the standard and supplied paper stock for hue, chroma, and saturation.

¹ This is a specialty grade and available in limited quantities.

² This property is automatically waived if the end use is to produce “scratch” pads, tablets for 1-sided use and of a temporary nature, etc.

³ Contact the GPO for availability of these colors: blue, buff, green, pink, salmon or yellow. Exact matches to these color standards are available in mill run quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For higher quality multicolor face and back offset printing of stationery, letterheads, certificates, citations, diplomas, etc., requiring execution with pen and ink and suitable for processing in a laser printer. Printed matter may include text, line illustrations and ruled forms. Grade allows for unique finishes for special print requirements.

Stock: Ground woodpulp not to exceed 1%.

*Note*¹: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 24 28
A tolerance of ±5% shall be allowed.

Folding endurance: Average each direction
not less than (MIT double folds)..... 12 14

Opacity: Average not less than (percent) 89 90
No individual specimen shall average less
than (percent) 87 88

Ruling and writing quality: Lines ruled and characters
written with pen and ink shall be clear-cut and free from
excessive feathering.

Curl: Paper shall lie flat before and after processing
through a high-speed copier or laser printer with either no
tendency to curl or with a curl, which can be overcome
under reasonable working conditions.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance
criteria in Part 4 shall apply.

Color: For a tight color match, designate a “precision” match in the solicitation. If no designation is specified, the “regular”
acceptance criterion will be applied in judging the acceptability of the color match between the standard and supplied paper
stock for hue, chroma, and saturation.

General appearance: Paper shall conform to the standard
sample(s) established by the Government.

Brightness: The white paper shall target 88% or as
specified.

Color: The paper in the order (or publication) shall be
uniform and the color variation shall not exceed
DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the
established color standards in Part 3 or match a color
sample supplied by the ordering agency. Colors shall not
fade or transfer (rub off) and shall appear even and
uniform on the surface of the sheet. The sheet shall not be
2-sided.

Finish: Paper shall have a smooth-finish or as specified
(linen, leatherette, felt, etc.).

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall
not exceed 650 specks per square meter. No sample sheet
(600 to 650 cm² in size) shall contain more than one defect
with equivalent area of 0.25 mm² or greater.

¹Alternatively, the ordering agency may specify a more environmentally-preferable paper by including specific language in
the solicitation and/or adjusting the **Stock** requirement for higher postconsumer fiber content or total recycled fiber content.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For highest quality offset printing and embossing of stationery, letterheads, certificates, citations, diplomas, etc. requiring execution with pen and ink, erasing quality, permanence and suitable for processing in a laser printer. The paper is restricted to printing of stationery for use by officials at the highest level of Government.

Stock: 100% cotton or linen fibers.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible, provided the increase in reflectance measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Postconsumer recovered fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than 6.5

Basis weight: 17 by 22 inches, 500 sheets
(pounds)..... 28
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) ... 47

Writing quality: Characters written with pen and ink shall be clear-cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture, and surface appearance, without ink spreading after repeated erasures.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Curl: Paper shall lie flat before and after processing through a high-speed copier or laser printer with either no tendency to curl or with a curl, which can be overcome under reasonable working conditions.

Watermark²: Shall be the seal of the United States, with four stars and year of manufacture, on the basis of four times on a sheet 17 by 22 inches, one in each quarter. The watermark shall be clear and legible. When viewed from the felt side of the sheet, the design shall appear as illustrated in Part 3 (Style C or F.)

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹ This grade is 100% recycled with the 100% cotton/linen fiber content. Unless the cotton/linen fibers used in the manufacture of the paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

² Full size copy will be provided upon request. The selection of Style C or F watermark depends on the presence of postconsumer recovered fiber in the paper. This grade with the Government watermark is typically not available in less than mill run quantities. The Government watermark may be waived at the discretion of the ordering agency.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For higher quality multicolor offset printing of maps, folded inserts, etc., requiring good folding endurance and permanence. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: Not less than 50% cotton or linen fibers; the remainder bleached chemical woodpulp.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible, provided the increase in reflectance, measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Postconsumer recovered fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than 5.0. Rosin content shall not exceed 1.5% for papers with pH values less than 6.5.

Basis weight: 17 by 22 inches, 500 sheets (pounds) 16 20 28
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average each direction not less than (MIT double fold) 75 75 75

Thickness: Average (mils) 2.6 3.0 3.9
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Equilibrium relative humidity: Shall be 45% $\pm 5\%$ at 23 °C ± 2 °C for the production of maps. As appropriate, request a certification from the supplier and/or prior-to-shipment of the paper test data showing that the paper meets requirement.

Smoothness: Average each side not to exceed (Sheffield units) 85

Writing quality: Characters written with ball point and felt shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture, and surface appearance, without ink spreading after repeated erasures. After erasures and burnishing, texture shall permit redrawing of sharp lines in ink.

Blocking: Sheets shall not stick together after being wet with water then allowed to dry in contact with other sheets of the same paper.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 80%.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹ Unless the cotton/linen fibers used in the manufacture of this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For higher quality multicolor offset printing of maps, folded inserts, etc. Has good folding endurance. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: Ground woodpulp not to exceed 1%. The use of melamine-formaldehyde or any material that releases formaldehyde into the atmosphere at concentration of 0.1 ppm or greater shall not be permitted in the manufacture of this paper

Note: Not less than 10% postconsumer fiber for the 20-pound stock and 20% postconsumer fiber for the 24-pound stock. Any percent over the 10 and 20 percentage points are encouraged for the 20- and 24-pound stock, respectively, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 4.5.

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 20 24

Wet tensile strength: Average not less than —
(Machine direction, kg/in) 5.1 5.9
(Cross direction, kg/in) 3.4 4.1

Folding endurance: Average each direction not less than (MIT double fold) ... 300 700

Bursting strength: Average not less than —
(Dry lb/in²) 40 50
(Wet lb/in²) 18 21

Opacity: Average not less than (percent) ... 90 91
No individual specimen shall average less than (percent) 88 89

Thickness: Average (mils) 3.7 4.1
A tolerance of ±0.0005 inch shall be allowed. Paper shall

be uniform and shall not vary more than 0.0004 inch from edge to edge.

Water resistance: Average not less than
(seconds) 35 40

Smoothness: Average each side not to exceed (Sheffield units)..... 110 to 70

Writing quality: Characters written with ball point and felt shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture, and surface appearance, without ink spreading after repeated erasures. After erasures and burnishing, texture shall permit redrawing of sharp lines in ink.

Blocking: Sheets shall not stick together after being wet with water then allowed to dry in contact with other sheets of the same paper.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 79%.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Equilibrium relative humidity: Shall be 45% ±5% at 23 °C ±2 °C for the production of maps. As appropriate, request a certification from the supplier and/or prior-to shipment of the paper test data showing that the paper meets requirement.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For high quality multicolor offset printing of maps, folded inserts, etc. Printed matter may include text, line illustrations and halftones up to 150-line screen.

Stock: 100% bleached chemical woodpulp. The use of melamine-formaldehyde or any material that releases formaldehyde into the atmosphere at concentrations of 0.1 ppm or greater shall not be permitted in the manufacture of this paper.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than 4.8

Basis weight: 25 by 38 inches,
500 sheets (pounds) 40¹ 50 60 70
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average each direction not less than (MIT double folds) 30 30 35 40

Tearing strength: Average each direction not less than (grams) 30 40 50 60

Opacity: Average not less than (percent) 88 89 91 92
No individual specimen shall average less than (percent) 86 87 89 90

Thickness: Average (mils) 3.0 3.5 4.1 4.9
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from one edge to the other.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The “precision” requirements of the acceptance criteria in Part 4 shall apply.

Equilibrium relative humidity: Shall be 45% $\pm 5\%$ at 23 °C ± 2 °C for the production of maps. As appropriate, request a certification from the supplier and/or prior-to-shipment of the paper test data showing that the paper meets requirement.

Water resistance: Average each side not less than (seconds) 20 25 30 35

Smoothness: Average each side (Sheffield units) 140 to 80

Writing quality: Characters written with ball point and felt shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture, and surface appearance, without ink spreading after repeated erasures. After erasures and burnishing, texture shall permit redrawing of sharp lines in ink.

Blocking: Sheets shall not stick together after being wet with water then allowed to dry in contact with other sheets of the same paper.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹ This weight is available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For higher quality multicolor offset printing of maps, folded inserts, etc., and requiring good folding endurance. Printed matter may include text, line illustrations and halftones up to 150-line screen. A mill run grade.

Stock: 100% bleached chemical woodpulp. The use of melamine-formaldehyde or any material that releases formaldehyde into the atmosphere at concentration of 0.1 ppm or greater shall not be permitted in the manufacture of this paper.

Note: Not less than 20% postconsumer fiber. Any percent over 20 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 4.8.

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 20 22
A tolerance of $\pm 5\%$ shall be allowed.

Wet tensile strength: Average not less than —
(Machine direction, kg/in) 1.4 1.8
(Cross direction, kg/in) 0.64 0.9

Folding endurance: Average each direction not less than (MIT double fold) .. 150 175

Bursting strength: Average not less than —
(Dry lb/in²) 30 33
(Wet lb/in²) 3.0 3.3

Opacity: Average not less than (percent).. 90 91
No individual specimen shall average less than (percent) 88 89

Thickness: Average (mils) 3.5 3.7
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Water resistance: Average each side not less than (seconds) 25 30

Smoothness: Average each side (Sheffield units) 110 to 80

Writing quality: Characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture, and surface appearance, without ink spreading after repeated erasures. After erasures and burnishing, texture shall permit redrawing of sharp lines in ink.

Blocking: Sheets shall not stick together after being wet with water than allowed to dry in contact with other sheets of the same paper.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81%.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Equilibrium relative humidity: Shall be 45% $\pm 5\%$ at 23 °C ± 2 °C for the production of maps. As appropriate, request a certification from the supplier and/or prior-to-shipment of the paper test data showing that the paper meets requirement.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For higher quality multicolor offset printing of maps, folded inserts, etc. Has good folding endurance and above average permanence. Printed matter may include text, line illustrations and halftones up to 150-line. A mill run grade.

Stock: Not less than 50% cotton or linen; the remainder bleached chemical woodpulp.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible, provided the increase in reflectance, measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Postconsumer recovered fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 5.0. The rosin content shall not exceed 2% for stock with pH value less than 6.5.

Basis weight: 17 by 22 inches, 500 sheets
(pounds)..... 36
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average each direction
not less than (MIT double fold) 300

Thickness: Average (mils) 5.3
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Smoothness: Average each side
(Sheffield units) 110 to 70

Writing quality: Characters written with ball point and felt shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture, and surface appearance, without ink spreading after repeated erasures. After erasures and burnishing, texture shall permit redrawing of sharp lines in ink.

Blocking: Sheets shall not stick together after being wet with water then allowed to dry in contact with other sheets of the same paper.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 80%.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Equilibrium relative humidity: Shall be 45% $\pm 5\%$ at 23 °C ± 2 °C for the production of maps. As appropriate, request a certification from the supplier and/or prior-to-shipment of the paper test data showing that the paper meets requirement.

¹ Unless the cotton/linen fibers used in the manufacture of this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For offset printing, generally face only, of multiform and for multiple copies of correspondence. Light weight, low bulk and low opacity. Printed matter may include text and light line illustrations.

Stock: 100% chemical pulp .

*Note*¹: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 9
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) .. 7

Writing quality: Characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 79% or as specified.

Color: The paper shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

OPTION

Alkaline paper. This option is for products requiring above average permanence. Replace / add properties below in the basic standard above.

Stock: 100% bleached chemical woodpulp.

*Note*¹: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met

Acidity: pH value by cold extraction shall average not less than 7.0. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

¹This is a specialty grade, available in limited quantities with low Government usage. A postconsumer fiber content for this grade is not practicable for cost and technological reasons.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For offset printing, generally face only, of multiform or as a cover for documents, maps, etc. Has above average permanence, low weight, low bulk and low opacity. Printed matter may include text and light line illustrations.

Stock: Not less than 25% cotton or linen fibers. Ground woodpulp not to exceed 1%.

Note¹: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 8
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) ... 10

Writing quality: Characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target 80% or as specified.

Color: The paper shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

¹This is a specialty grade, available in limited quantities with low Government usage. A postconsumer fiber content for this grade is not practicable for cost and technological reasons.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face only offset and flexographic printing of marginally punched continuous open forms, including multiple copies principally on web-type presses. Printed matter may include ruled forms with text, line illustrations and continuous tones. Slitting and pasting are included in press capabilities. End use of the paper is generally on impact-type computer printers, mechanical bursters and decollators.

Stock: Ground wood pulp not to exceed 1%.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

A tolerance of ± 0.0003 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Basis weight: 17 by 22 inches, 500 sheets (pounds) 9/10 11/12/13 15/16 18 20
A tolerance of $\pm 5\%$ shall be allowed.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Bursting strength:
Average not less than lb/in² 6 8 9 12 15

General appearance: Paper shall conform to the standard sample(s) established by the Government.
Brightness: The white paper shall target not less than 79% or as specified.

Pick resistance: Average each side not less than 10-A Dennison wax number. No individual specimen shall average less than 8-A.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Opacity: Average not less than (percent) 78 79 80 81 82
No individual specimen shall average less than (percent) 76 77 78 79 80

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Thickness: Average (mils) 2.4 2.4 3.0 3.3 3.7

Finish and formation: Shall be uniform.
Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing of stationery, circulars, open forms, etc.; requiring execution with pen and ink, erasing quality, and suitable for processing in a laser printer. Printed matter may include text and line illustrations.

Stock: Ground woodpulp not to exceed 1%.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than 6.5

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 20 24
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average each direction
not less than (MIT double fold) 30 35

Opacity: Average not less than
(percent) 84 85
No individual specimen shall average less
than (percent) 82 83

Thickness: Average (mils) 3.7 4.5
A tolerance of ± 0.0005 inch shall be allowed. Paper shall

be uniform and shall not vary more than 0.0004 inch from edge to edge.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face only offset and flexographic printing of marginally punched continuous open forms, including multiple copies, principally on web-type presses. Printed matter may include ruled forms with text, line illustrations and continuous tones. Slitting and pasting are included in press capabilities. End use of the paper is generally on impact-type computer printers, mechanical bursters and decollators.

Stock: 100% chemical pulp.

Note: Not less than 50% total recovered fiber of which 30 percentage points shall be postconsumer fiber. Recovered fiber in any percent over 50 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches,
500 sheets (pounds) 10 12 15 18 20
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 6 8 9 12 15

Pick resistance: Average, each side, not less than 10-A
Dennison wax number. No individual specimen shall
average less than 8-A.

Opacity: Average not less
than (percent) 80 81 81 82 82
No individual specimen
shall average less than
(percent) 78 79 79 80 80

Thickness: Average
(mils) 2.6 2.8 3.5 4.1 4.5

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 77% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish and formation: Shall be uniform.

Cleanliness: Shall match the Government standard.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face only offset and flexographic printing of marginally punched continuous open forms, including multiple copies, principally on web-type presses. Printed matter may include ruled forms with text, line illustrations and continuous tones. Slitting and pasting are included in press capabilities. End use of the paper is generally on impact-type computer printers, mechanical bursters and decollators.

Stock: 100% chemical pulp.

Note: Not less than 50% total recovered fiber of which 30 percentage points shall be postconsumer fiber. Recovered fiber, in any percent over 50 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches,
500 sheets (pounds) 10 12 15 18 20
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 6 8 9 12 15

Pick resistance: Average each side not less than 10-A
Dennison wax number. No individual specimen shall
average less than 8-A.

Opacity: Average not less
than (percent) 80 81 82 82 83
No individual specimen
shall average less than
(percent) 78 79 80 80 81

Thickness: Average
(mils) 2.6 2.8 3.5 4.1 4.5
A tolerance of ± 0.0005 inch shall be allowed. Paper shall
be uniform and shall not vary more than 0.0004 inch from
edge to edge.

Ruling and writing quality: Lines ruled and characters
written with ball point and felt tip pens shall be clear cut
and free from excessive feathering.

General appearance: Paper shall conform to the standard
sample(s) established by the Government.

Brightness: Paper shall target 59%, -1% and +5% or as
specified.

Color: The paper in the order (or publication) shall be
uniform and the color variation shall not exceed
DE(CIELAB) = 1.0

Finish and formation: Shall be uniform.

Cleanliness: Shall match the Government standard.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance
criteria in Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality offset printing. The 16- and 20-pound white papers are for stationery face only. Colored stock is used for open forms, legal documents, ledgers, etc. Suitable for face and back offset printing, processing through high speed copiers and laser printers, requiring execution with pen and ink, erasing quality and permanence (archival quality). Opacity of white paper is not a specified property and therefore, subject to variation. Printed matter may include text and light line illustrations.

Stock: Not less than 25% cotton or linen fibers; the remainder bleached chemical woodpulp

*Note*¹: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 7.5. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Basis weight: 17 by 22 inches,
500 sheets (pounds)..... 16 20 24
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average not less than (MIT double folds) 75 75 80

Tearing strength: Average each direction not less than (grams) 33 40 45

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture, and surface appearance, without ink spreading after repeated erasure.

Watermark²: Shall be the seal of the United States, with one star and year of manufacture, on the basis of four

times on a sheet 17 by 22 inches, one in each quarter. The watermark shall be clear and legible. When viewed from the felt side of the sheet, the design shall appear as illustrated in Part 3 (Style D.)

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The “precision” requirements of the acceptance criteria in Part 4 shall apply except as noted above.

ANSI/NISO: Conformance to the standard Z39.48—1992 (www.niso.org) permits the printing of the infinity symbol (∞) in the document or publication. Prior-to-production testing of the paper is recommended.

¹ Unless the cotton/linen fibers used in the manufacture of the paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

² Full size copy will be provided upon request. This grade with the Government watermark is typically not available in less than mill run quantities. The Government watermark may be waived at the discretion of the ordering agency.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality offset printing open forms, stationery, face only on the 16- and 20-pound paper and face and back on the 24-pound. Suitable for processing through high speed copiers and laser printers, requiring execution with pen and ink and erasing quality. Opacity of white paper is not a specified property and therefore, subject to variation. Printed matter may include text and light line illustrations. The 24-pound paper is suitable for imaging face and back.

Stock: Not less than 25% cotton or linen fibers. Ground woodpulp not to exceed 1%; the remainder chemical pulp.

*Note*¹: Not less than 50% total recovered fiber of which 30 percentage points shall be postconsumer fiber. Postconsumer fiber, in any percent over 30 percentage points, is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than ... 6.5

Basis weight: 17 by 22 inches,
500 sheets (pounds)..... 16 20 24
A tolerance of ±5% shall be allowed.

Folding endurance: Average not less than (MIT double folds) 14 18 25

Smoothness: Average each side not to exceed (Sheffield units) 240

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture, and surface appearance, without ink spreading after repeated erasures.

Watermark²: Shall be the seal of the United States, with one star and year of manufacture, on the basis of four

times on a sheet 17 by 22 inches, one in each quarter. The watermark shall be clear and legible. When viewed from the felt side of the sheet, the design shall appear as illustrated in Part 3 (Style D.)

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted above.

¹ Unless the cotton/linen fibers used in the manufacture of this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

² Full size copy will be provided upon request. This grade with the Government watermark is typically not available in less than mill run quantities. The Government watermark may be waived at the discretion of the ordering agency.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For offset printing, generally face only on open master forms, etc., which are used for duplicating in the ammonia process of reproduction. Printed matter may include text and line illustrations.

Stock: Not less than 25% cotton or linen fibers. Ground woodpulp not to exceed 1%.

Note¹: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 5.0. The average rosin content shall not exceed 2% for papers with pH value less 6.5.

Basis weight: 17 by 22 inches, 500 sheets (pounds) ... 16
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average each direction not less than (MIT double folds) 75

Opacity: Average not to exceed (percent) 70

Note: this paper should freely transmit ultra-violet light in near visible portions of the spectrum. It should retain its ultra-violet light transparency with age, remaining free from that degree of discoloration, which would materially reduce its printing speed. If treated to aid transparency, the materials used shall not cause bleeding or feather of the image nor offsetting in the files.

Ruling and writing quality: Lines ruled and characters

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture, and surface appearance, without ink spreading after repeated erasure.

Watermark: Paper shall not be watermarked.

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target not less than 80% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹This is a specialty grade and available in limited quantities with low Government usage. A postconsumer fiber content for this grade is not practicable for cost and technological reasons.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For high quality face and back offset printing of stationery, open forms, etc. Suitable for processing through high speed copiers and laser printers with imaging on both face and back, requiring execution with pen and ink, erasing quality, permanence (archival quality) and greater opacity than obtainable in Standard JCP G40 or G45. Printed matter may include text and line illustrations.

Stock: Not less than 25% cotton or linen fibers; the remainder bleached chemical woodpulp

*Note*¹: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 7.5. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Basis weight: 17 by 22 inches,
500 sheets (pounds)..... 20 24
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average not less than (MIT double folds) 75 80

Tearing strength: Average each direction not less than (grams) 40 45

Opacity: Average not less than (percent) .. 86 88
No individual specimen shall average less than (percent) 84 86

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture and surface appearance, without ink spreading after repeated erasure.

Watermark²: Shall be the seal of the United States, with one star and year of manufacture, on the basis of four times on a sheet 17 by 22 inches, one in each quarter. The watermark shall be clear and legible. When viewed from the felt side of the sheet, the design shall appear as illustrated in Part 3 (Style D.)

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The “precision” requirements of the acceptance criteria in Part 4 shall apply except as noted above.

ANSI/NISO: Conformance to the standard Z39.48—1992 (www.niso.org) permits the printing of the infinity symbol (∞) in the document or publication. Prior-to-production testing of the paper is recommended.

¹ Unless the cotton/linen fibers used in the manufacture of this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

² Full size copy will be provided upon request. This grade with the Government watermark is typically not available in less than mill run quantities. The Government watermark may be waived at the discretion of the ordering agency.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For higher quality face and back offset printing of stationery, open forms, etc. Suitable for processing through high speed copiers and laser printers with imaging on both face and back, requiring execution with pen and ink, erasing quality and permanence (archival quality). Has a greater opacity than Standards JCP G40 or G45. Printed matter may include text and line illustrations.

Stock: Not less than 25% cotton or linen fibers. Ground woodpulp not to exceed 1%; the remainder bleached chemical pulp

Note: Not less than 50% total recovered fiber of which 30 percentage points shall be postconsumer fiber. Postconsumer fiber, in any percent over 30 percentage points, is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value shall average not less than ... 6.5

Basis weight: 17 by 22 inches,
500 sheets (pounds)..... 20 24
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average not less than (MIT double folds) 18 20

Opacity: Average not less than (percent) .. 88 90
No individual specimen shall average less than (percent) 86 88

Smoothness: Average each side not to exceed (Sheffield units) 270

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture and surface appearance, without ink spreading after repeated erasure.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted above.

Watermark²: Shall be the seal of the United States, with one star and year of manufacture, on the basis of four times on a sheet 17 by 22 inches, one in each quarter. The watermark shall be clear and legible. When viewed from the felt side of the sheet, the design shall appear as illustrated in Part 3 (Style D.)

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall have a target brightness not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stocked, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹ Unless the cotton/linen fibers used in the manufacture of this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

² Full size copy will be provided upon request. This grade with the Government watermark is typically not available in less than mill run quantities. The Government watermark may be waived at the discretion of the ordering agency.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For higher quality offset printing of stationery for use by officials at the higher levels of Government, requiring execution with pen and ink, erasing quality, above average permanence and suitable for processing in laser printers. Printed matter may include text and line illustrations.

Stock: Not less than 50% cotton or linen fibers. Ground woodpulp not to exceed 1%.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible, provided the increase in reflectance measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Not less than 50% total recovered fiber of which 30 percentage points shall be postconsumer fiber. Postconsumer fiber, in any percent over 30 percentage points, is encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches,
500 sheets (pounds)..... 16 20 24
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average not less
than (MIT double folds) 60 75 85

Smoothness: Average each side not to
exceed (Sheffield units) 370 to 325

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply except as noted above.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture and surface appearance, without ink spreading after repeated erasures.

Watermark²: Shall be the seal of the United States, with two stars and year of manufacture, on the basis of four times on a sheet 17 by 22 inches, one in each quarter. The watermark shall be clear and legible. When viewed from the felt side of the sheet, the design shall appear as illustrated in Part 3 (Style E.)

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹ Unless the cotton/linen fibers used in the manufacture of this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

² Full size copy will be provided upon request. This grade with the Government watermark is typically not available in less than mill run quantities. The Government watermark may be waived at the discretion of the ordering agency.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For highest quality offset printing and embossing of stationery used by officials at the highest level of Government, requiring execution with pen and ink, erasing quality, permanence and suitable for processing in laser printers. Printed matter may include text and line illustrations.

Stock: 100% cotton or linen fibers.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible, provided the increase in reflectance measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Postconsumer recovered fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 6.5

Basis weight: 17 by 22 inches,
500 sheets (pounds)..... 20 24
A tolerance of ±5% shall be allowed.

Folding endurance: Average not less
than (MIT double folds) 400 400

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling and writing

quality, texture and surface appearance, without ink spreading after repeated erasure.

Watermark²: Shall be the seal of the United States, with four stars and year of manufacture, on the basis of four times on a sheet 17 by 22 inches, one in each quarter. The watermark shall be clear and legible. When viewed from the felt side of the sheet, the design shall appear as illustrated in Part 3 (Style C or F.)

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria in Part 4 shall apply.

¹ Note, this grade is 100% recycled with the 100% cotton/linen fiber content. Unless the cotton/linen fibers in this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

² Full size copy will be provided upon request. The selection of Style C or F watermark depends on the presence of postconsumer recovered fiber in the paper. This grade with the Government watermark is typically not available in less than mill run quantities. The Government watermark may be waived at the discretion of the ordering agency.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For highest quality offset printing of certificates, citations, diplomas, etc., requiring execution with pen and ink, erasing quality, permanence and suitable for processing in laser printers. Printed matter may include text and line illustrations. A mill run grade.

Stock: 100% cotton or linen fibers.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible; provided the increase in reflectance, measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Postconsumer recovered fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 6.5

Basis weight: 17 by 22 inches, 500 sheets (pounds).. 32
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average not less than
(MIT double folds) 400

Ruling and writing quality: Lines ruled and character written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Watermark: Paper shall not be watermarked.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Erasing quality: Paper shall retain good ruling and writing quality, texture and surface appearance, without ink spreading after repeated erasure.

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target not less than 80% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish: Paper shall have a cockle finish.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹Note, this grade is 100% recycled with the 100% cotton/linen fiber content. Unless the cotton/linen fibers in this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For highest quality offset printing of certificates, citations, diplomas, enrolled bills, etc. requiring processing in copiers and laser printers, execution with pen and ink, erasing quality, permanence and suitable for processing in laser printers. Printed matter may include text, line illustrations and suitable for embossing. A mill run grade.

Stock: 100% cotton or linen fibers.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible; provided the increase in reflectance, measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Postconsumer recovered fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 6.5

Basis weight: 17 by 22 inches,
500 sheets (pounds)..... 47
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less
than (lb/in²)..... 40

Ruling and writing quality: Lines ruled and character written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Watermark: Paper shall not be watermarked.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture and surface appearance, without ink spreading after repeated erasure.

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 60% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish: Sheffield smoothness not less than 250 units each side.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

¹ Note, this grade is 100% recycled with the 100% cotton/linen fiber content. Unless the cotton/linen fibers in this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality offset printing of announcements, certificates, citations, diplomas, enrolled bills, etc., requiring processing in copiers and laser printers, execution with pen and ink, erasing quality, and highest degree of permanence (archival quality) when specified. Printed matter may include text, line illustrations and suitable for embossing. The archival paper is available in limited quantities.

Stock: 100% bleached chemical woodpulp.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches,
500 sheets (pounds)..... 24 32 47
A tolerance of $\pm 5\%$ shall be allowed.

Folding endurance: Average not less
than (MIT double folds) 28 30 30

Ruling and writing quality: Lines ruled and character written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling and writing quality, texture and surface appearance, without ink spreading after repeated erasure.

Watermark: Paper shall not be watermarked.

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no

tendency to curl or with a curl which can be overcome under reasonable working conditions.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 79% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

OPTION

Archival paper. This option is for products requiring permanence (archival quality). Add the properties below in the basic standard above.

Acidity: pH value by cold extraction shall average not less than 7.5. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Tearing strength: Average each direction
not less than (grams) 50 70 100

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above.

ANSI/NISO: Conformance to the standard Z39.48—1992 (www.niso.org) permits the printing of the infinity symbol (∞) in the document or publication. Prior-to-production testing of the paper is recommended.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality offset printing of certificates, citations, diplomas, etc., requiring execution with pen and ink, erasing quality and highest degree of permanence (archival quality) when specified. Printed matter may include text, line illustrations and suitable for processing in laser printers. The archival paper is available in limited quantities.

Stock: 100% bleached chemical woodpulp.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

Basis weight: 17 by 22 inches,
500 sheets (pounds)..... 47
A tolerance of $\pm 5\%$ shall be allowed.

General appearance: Paper shall conform to the standard sample(s) established by the Government.
Brightness: Shall target 60% or as specified.

Bursting strength: Average not less
than (lb/in²)..... 45

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Ruling and writing quality: Lines ruled and character written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Finish: Sheffield smoothness not to exceed 250 units each side.
Formation: Shall be uniform.

Erasing quality: Paper shall retain good ruling and writing quality, texture and surface appearance, without ink spreading after repeated erasure.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Watermark: Paper shall not be watermarked.

OPTION

Archival paper. This option is for products requiring permanence (archival quality). Add the properties below in the basic standard above.

Acidity: pH value by cold extraction shall average not less than 7.5. The paper shall contain not less than 2% calcium carbonate.
Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Tearing strength: Average each direction
not less than (grams) 50 70 100

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above.

ANSI/NISO: Conformance to the standard Z39.48—1992 (www.niso.org) permits the printing of the infinity symbol (∞) in the document or publication. Prior-to-production testing of the paper is recommended.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing of open forms, ledgers, notices, posters, etc. requiring execution with pen and ink and erasing quality. Printed matter may include text, line illustrations, halftones and solid reverses.

Stock: Ground woodpulp not to exceed 1%. The total lignin content of the paper shall not exceed 3% of the fiber weight.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 6.5 for white paper and 5.0 for colored paper

Basis weight: 17 by 22 inches,
500 sheets (pounds) 24 28 32 44
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 22 25 28 37

Tearing strength: Average
each direction not less
than (grams) 35 50 60 90

Thickness: Average
(mils) 4.0 4.7 5.3 7.3
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Ruling and writing quality: Lines ruled and character

written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling and writing quality, texture and surface appearance, without ink spreading after repeated erasure.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 81% or as specified.

*Color*¹: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater

OPTION

Alkaline paper. This option is for products requiring above average permanence. Replace / add the properties below to the basic standard above.

Stock: 100% bleached chemical woodpulp.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall average not less than 7.0. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above.

Color: For a tight color match, designate a “precision” match in the solicitation. If no designation is specified, the “regular” acceptance criterion will be applied in judging the acceptability of the color match between the standard and supplied paper stock for hue, chroma, and saturation.

¹ Contact the GPO for availability of these colors: blue, buff, green, pink, salmon or yellow. Exact matches to these color standards are available in mill run quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality multicolor, face and back, offset printing of open forms, ledgers, notices, posters, legal documents, etc., requiring execution with pen and ink, erasing quality and above average permanence. Printed matter may include text, line illustrations, halftones and solid reverses.

Stock: Not less than 25% cotton or linen fibers; the remainder bleached chemical woodpulp.

*Note*¹: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 6.5

Basis weight: 17 by 22 inches,
500 sheets (pounds) 24 32 44
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 25 34 47

Tearing strength: Average each
direction not less than (grams) 35 60 80

Thickness: Average (mils) 4.0 5.3 7.3
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Ruling and writing quality: Lines ruled and character written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Erasing quality: Paper shall retain good ruling and writing quality, texture and surface appearance, without ink spreading after repeated erasure.

Watermark²: Shall be the seal of the United States, with one star and year of manufacture, on the basis of four times on a sheet 17 by 22 inches, one in each quarter. The watermark shall be clear and legible. When viewed from the felt side of the sheet, the design shall appear as illustrated in Part 3 (Style D.)

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 80%.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹ Unless the cotton/linen fibers used in the manufacture of this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

² Full size copy will be provided upon request. This grade with the Government watermark is typically not available in less than mill run quantities. The Government watermark may be waived at the discretion of the ordering agency.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For highest quality multicolor face and back offset printing of open forms, ledgers, certificates, citations, diplomas, legal documents, etc., requiring execution with pen and ink, erasing quality and permanence. Printed matter may include text, line illustrations and solid reverses.

Stock: 100% cotton or linen fibers.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible; provided the increase in reflectance, measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: *Postconsumer recovered fiber in any percentage is encouraged, provided that the requirements of this Standard are met.*

Acidity: pH value average not less than 6.5

Basis weight: 17 by 22 inches,
500 sheets (pounds) 24 32 44
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 50 70 95

Tearing strength: Average each
direction not less than (grams) 50 65 90

Thickness: Average (mils) 4.0 5.3 7.3
A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Ruling and writing quality: Lines ruled and character written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling and writing quality, texture, and surface appearance, without ink spreading after repeated erasure.

Watermark²: Shall be the seal of the United States, with four stars and year of manufacture, on the basis of four times on a sheet 17 by 22 inches, one in each quarter. The watermark shall be clear and legible. When viewed from the felt side of the sheet, the design shall appear as illustrated in Part 3 (Style C or F.)

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 80%.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹ This is a specialty grade and available in limited quantities. The grade is 100% recycled with the 100% cotton/linen fiber content. Unless the cotton/linen fibers used in the manufacture of the paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

² Full size copy will be provided upon request. The selection of Style C or F watermark depends on the presence of postconsumer recovered fiber in the paper. The Government watermark may be waived at the discretion of the ordering agency.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For face and back offset printing of card indexes, identification cards, office forms, notices, posters, covers, etc., requiring execution with pen and ink, erasing quality and above average permanence. Printed matter may include text, line illustrations, halftones and solid reverses.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 20% postconsumer fiber. Any percent over 20 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 6.5 for white paper and 5.0 for colored paper.

Basis weight: 25-1/2 by

30-1/2 inches, 500 sheets

(pounds) 90 110 140 170

A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength:

Average not less than

(lb/in²) 40 50 60 75

Thickness: Average (mils) 7.5 9.0 11.5 13.8

A tolerance of ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Ruling and writing quality: Lines ruled and character written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling and writing quality, texture, and surface appearance, without ink spreading after repeated erasure.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 81% or as specified.

Color¹: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

OPTION

Alkaline paper. This option is for products requiring above average permanence. Replace the properties in the basic standard above with the ones below.

Stock: 100% bleached chemical woodpulp.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall be not less than 7.0. The paper shall contain not less than 2% calcium carbonate.

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above.

Color: For a tight color match, designate a "precision" match in the solicitation. If no designation is specified, the "regular" acceptance criterion will be applied in judging the acceptability of the color match between the standard and supplied paper stock for hue, chroma, and saturation.

¹ Contact the GPO for availability of these colors: blue, buff, green, pink, salmon or yellow. Exact matches to these color standards are available in mill run quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For high quality face and back offset printing of card indexes, identification cards, office forms, notices, posters, covers, etc., requiring execution with pen and ink, erasing quality and above average permanence. Printed matter may include text, illustrations, halftones and solid reverses.

Stock: Not less than 25% cotton or linen fibers; the remainder bleached chemical woodpulp.

Note¹: Not less than 20% postconsumer fiber. Any percent over 20 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 6.5 for white paper and 5.0 for colored paper. The rosin content shall be less than 2.5% for papers with pH value less than 6.5.

Basis weight: 25-1/2 by 30-1/2 inches, 500 sheets
(pounds) 90 110 140 170
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength:
Average not less than
(lb/in²) 40 65 85 100

Thickness: Average (mils) 7.4 9.0 11.5 13.8
A tolerance of ± 0.0005 inch shall be allowed for the 90-, 110- and 140-pound stock and ± 0.0008 inch for the 170-pound stock. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Ruling and writing quality: Lines ruled and character

written with ball point and felt tip pens shall be clear cut and free from excessive feathering

Erasing quality: Paper shall retain good ruling and writing quality, texture and surface appearance, without ink spreading after repeated erasure.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 80% or as specified.

Color²: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Color: For a tight color match, designate a “precision” match in the solicitation. If no designation is specified, the “regular” acceptance criterion will be applied in judging the acceptability of the color match between the standard and supply paper stock for hue, chroma, and saturation.

¹ Unless the cotton/linen fibers used in the manufacture of this paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

² Contact the GPO for availability of these colors: blue, buff, green, pink, salmon or yellow. Exact matches to these color standards are available in mill run quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For highest quality face and back offset printing of card indexes, identification cards, office forms, etc., requiring execution with pen and ink, erasing quality and permanence. Printed matter may include text, line illustrations halftones and solid reverses. A mill run grade.

Stock: 100% cotton or linen fibers.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible; provided the increase in reflectance, measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Postconsumer recovered fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 6.5

Basis weight: 25-1/2 by 30-1/2 inches, 500 sheets (pounds) 125
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 100

Thickness: Average (mils) 10.0
A tolerance of ± 0.0005 inch shall be allowed. Paper shall

be uniform and shall not vary more than 0.0004 inch from edge to edge.

Ruling and writing quality: Lines ruled and character written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Erasing quality: Paper shall retain good ruling, writing, and typing quality, texture and surface appearance, without ink spreading after repeated erasure.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 60% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

¹ The grade is 100% recycled with the 100% cotton/linen fiber content. Unless the cotton/linen fibers used in the manufacture of the paper were recovered from an item used by the consumer, the cotton/linen fibers are not a *postconsumer* recovered fiber.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality multicolor face and back offset printing of covers for book, periodicals, etc. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: Ground woodpulp not to exceed 1%.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value of the coating shall average not less than 6.5.

Basis weight: 20 by 26 inches, 500 sheets (pounds) 60/65¹ 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 35 50 60

Tearing strength: Average each direction not less than (grams) 75 100 120

Opacity: Average not less than (percent) 93 94 95
No individual specimen shall average less than (percent) 91 92 93

Gloss (75°): Average each side not less than (percent) 50

Smoothness: Average each side not to exceed (Sheffield units) 110

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

¹ This weight is available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For highest quality multicolor face and back offset printing of reply cards, covers for book, periodicals, etc. The 60-pound stock is not suitable for use as a reply card. Printed matter may include text, line illustrations, halftones up to 200-line screen and solid reverses.

Stock: Free from ground or unbleached woodpulp.

Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value of the coating shall average not less than 6.5.

Basis weight: 20 by 26 inches,
500 sheets (pounds) 60¹ 80 100 120
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 45 55 65 75

Tearing strength: Average
each direction not less than
(grams) 80 100 120 140

Opacity: Average not less than
(percent) 96 97 98 98
No individual specimen shall
average less than (percent) 94 95 96 96

Gloss (75°): Average each side not less
than (percent) 50

Smoothness: Average each side not to
exceed (Sheffield units) 55

General appearance: Paper shall conform to the standard
sample(s) established by the Government.

Brightness: Average not less than 86% or as specified.

Color: The paper in the order (or publication) shall be
uniform and the color variation shall not exceed
DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly
applied; shall not be gritty, mottled, stippled, or ribbed in
appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall
not exceed 25 specks per square meter. No sample sheet
(600 to 650 cm² in size) shall contain more than one defect
with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance
criteria Part 4 does NOT apply.

¹ The caliper (nominal thickness) for this weight stock may not meet USPS requirement; this weight is available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality multicolor face and back offset printing of reply cards, covers for book, periodicals, etc. The 60-pound stock is not suitable for use as a reply card. Printed matter may include text, line illustrations, halftones up to 200-line screen and solids reverses.

Stock: Free from ground or unbleached woodpulp.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value of the coating shall average not less than 6.5.

Basis weight: 20 by 26 inches,
500 sheets (pounds) 60¹ 80 100 120
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 40 50 60 70

Tearing strength: Average
each direction not less than
(grams) 80 100 120 140

Opacity: Average not less than
(percent) 96 96 97 98
No individual specimen shall
average less than (percent) 94 94 95 96

Gloss (75°): Average each side not less than
(percent)..... 50

Smoothness: Average each side not to
exceed (Sheffield units) 110

General appearance: Paper shall conform to the standard
sample(s) established by the Government.

Brightness: Average not less than 84% or as specified.

Color: The paper in the order (or publication) shall be
uniform and the color variation shall not exceed
DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly
applied; shall not be gritty, mottled, stippled, or ribbed in
appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall
not exceed 50 specks per square meter. No sample sheet
(600 to 650 cm² in size) shall contain more than one defect
with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance
criteria Part 4 does NOT apply.

¹ The caliper (nominal thickness) for this weight stock may not meet USPS requirement; this weight is available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For high quality multicolor face and back offset printing of brochures, programs, covers for books, periodicals, etc. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 20 by 26 inches,
500 sheets (pounds) 50¹ 65 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 30 40 50 60

Tearing strength: Average
each direction not less than
(grams) 100 130 160 180

Opacity: For white only,
average not less than
(percent) 94 95 96 97
No individual specimen shall
average less than (percent) 92 93 94 95

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target 81% or as specified.

Color²: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Color: For a tight color match, designate a “precision” match in the solicitation. If no designation is specified, the “regular” acceptance criterion will be applied in judging the acceptability of the color match between the standard and supplied paper stock for hue, chroma, and saturation.

¹This weight is available in limited quantities.

²Contact the GPO for availability of these colors: vermilion red, canary yellow, sun orange, killarney green, victoria green, dutch blue, venice blue, peach tan, pecan brown, saddle tan, brown, light gray and sand gray. Exact matches to these color standards are available in mill run quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For higher quality multicolor face and back offset printing of brochures, programs, covers for books, periodicals, etc. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses on the smooth stock. Grade allows for unique finishes for special print requirements.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 20 by 26 inches, 500 sheets (pounds) 65 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Tearing strength: Average each direction not less than (grams) 130 160 200

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target 88% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish: Paper shall have a smooth-finish or as specified (linen, leatherette, felt, etc.).

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For high quality multicolor face and back offset printing of brochures, programs, covers for books, periodicals, etc. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 20 by 26 inches,
500 sheets (pounds) 50 65 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 30 40 50 60

Tearing strength: Average
each direction not less than
(grams) 100 130 160 180

Opacity: Average not less than
(percent) 94 95 96 97

No individual specimen shall
average less than (percent) 92 93 94 95

General appearance: Paper shall conform to the standard
sample(s) established by the Government.

Brightness: Shall target not less than 83% or as specified.

Color: The paper in the order (or publication) shall be
uniform and the color variation shall not exceed
DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall
not exceed 650 specks per square meter. No sample sheet
(600 to 650 cm² in size) shall contain more than one defect
with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance
criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face and back offset printing of brochures, programs, covers for books, periodicals, etc. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: Ground woodpulp not to exceed 1%.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 22-1/2 by 28-1/2 inches, 500 sheets (pounds) 57 67 80
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 28 32 40

Tearing strength: Average each direction not less than (grams) 90 110 135

Opacity: Average not less than (percent) 93 94 95
No individual specimen shall average less than (percent) 91 92 93

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target 83% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0 . For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For high quality multicolor face and back offset printing of brochures, programs, covers for books, pamphlets, etc. requiring attractive appearance. Has a rough, soft finish with decorative chain marks running at right angles to laid lines. Printed matter may include text, line illustrations and halftones up to 150-line screen.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value of the coating shall average not less than 6.5.

Basis weight: 20 by 26 inches, 500 sheets (pounds) 65 80 100
 A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 25 30 40

Tearing strength: Average each direction not less than (grams) 80 100 125

Chain marks: Shall run parallel to machine direction of the sheet and match the standard sample.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target 83% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0 .

For colored stock, paper shall match one of the established color standards in Part 3 or match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Finish: Paper shall have a laid-finish.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality multicolor face and back offset printing of covers for book, periodicals, etc. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: Ground wood pulp not to exceed 1%.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value of the coating shall average not less than 6.5.

Basis weight: 20 by 26 inches, 500 sheets (pounds) 60/65¹ 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 40 50 60

Tearing strength: Average each direction not less than (grams) 80 100 120

Opacity: Average not less than (percent) 95 95 96
No individual specimen shall average less than (percent) 93 93 94

Gloss (75°): Average each side not to exceed (percent)..... 25

Smoothness: Average each side not to exceed (Sheffield units) 120

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

¹ This weight is available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality multicolor face and back offset printing of covers for book, periodicals, etc. Low glare. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: Ground wood pulp, not to exceed 1%.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value of the coating shall average not less than 6.5.

Basis weight: 20 by 26 inches, 500 sheets (pounds) 60/65¹ 80 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 40 50 60

Tearing strength: Average each direction not less than (grams) 80 100 120

Opacity: Average not less than (percent) 95 95 96
No individual specimen shall average less than (percent) 93 93 94

Gloss (75°): Average each side (percent) 25 to 40

Smoothness: Average each side not to exceed (Sheffield units) 115

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

¹ This weight is available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For highest quality multicolor face and back offset printing of reply cards, covers for book, periodicals, etc. Low glare. The 60-pound stock is not suitable for use as a reply card. Printed matter may include text, line illustrations, halftones up to 200-line screen and solid reverses.

Stock: Free from ground or unbleached woodpulp.

Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value of the coating shall average not less than 6.5.

Basis weight: 20 by 26 inches,
500 sheets (pounds) 60¹ 80 100 120
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 45 55 65 75

Tearing strength: Average each direction not less than (grams) 80 100 120 140

Opacity: Average not less than (percent) 97 97 98 98
No individual specimen shall average less than (percent) 95 95 96 96

Gloss (75°): Average each side (percent)..... 30 to 50

Smoothness: Average each side not to exceed (Sheffield units) 60

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 86% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 25 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 does NOT apply.

¹ The caliper (nominal thickness) for this weight stock may not meet USPS requirement; this weight is available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For high quality multicolor face and back offset printing of reply cards, covers for book, periodicals, etc. Low glare. The 60-pound stock is not suitable for use as a reply card. Printed matter may include text, line illustrations, halftones up to 200-line screen and solid reverses.

Stock: Free from ground or unbleached woodpulp.
Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

Acidity: pH value of the coating shall average not less than 6.5.

Basis weight: 20 by 26 inches,
500 sheets (pounds) 60¹ 80 100 120
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) 45 55 65 75

Tearing strength: Average each direction not less than (grams) 80 100 120 140

Opacity: Average not less than (percent) 96 96 97 98
No individual specimen shall average less than (percent) 94 94 95 96

Gloss (75°): Average each side (percent)..... 25 to 45

Smoothness: Average each side not to exceed (Sheffield units) 115

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 84% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 50 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 does NOT apply.

¹ The caliper (nominal thickness) for this weight stock may not meet USPS requirement; this weight is available in limited quantities.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face offset printing of folders, tent cards, and covers for book, periodicals, etc. Has good strength for scoring, folding and die cutting. Printed matter may include text, line illustrations, halftones up to 150-line screen and solid reverses.

Stock: Free from ground or unbleached woodpulp.

Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

8pt 10pt 12pt 15pt 24pt

Caliper: A tolerance of ± 0.0005 inch shall be allowed for the 8-point paper; ± 0.0008 inch for the 10-, 12- and 15-point; and ± 0.0010 inch for the 24-point.

Bursting strength:

Average not less than (lb/in ²)	40	50	60	70	120
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Tearing strength:

Average each direction not less than (grams).....	75	100	120	150	180
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Opacity: Average not

less than (percent)	90	91	92	94	94
No individual specimen shall average less than (percent)	88	89	90	92	92

Gloss (75°) of the coated side: Average each side not less than (percent) 50

Smoothness of coated side: Average not to exceed (Sheffield units) 110

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 does NOT apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For highest quality multicolor face and back offset printing of reply cards, folders, tent cards, etc. Printed matter may include text, line illustrations, halftones up to 200-line screen and solids.

Stock: Free from ground or unbleached woodpulp.

Note: Not less than 10% postconsumer fiber. Any percent over 10 percentage points are encouraged, provided that the requirements of this Standard are met.

8pt 10pt 12pt 15pt 24pt

Caliper: A tolerance of ± 0.0005 inch shall be allowed for the 8-point paper; ± 0.0008 inch for the 10-, 12- and 15-point; and ± 0.0010 inch for the 24-point.

Bursting strength:

Average not less than
(lb/in²) 40 50 60 70 100

Tearing strength:

Average each direction
not less than (grams) 75 100 120 150 180

Gloss (20°) of coated side: Average coated side
not less than (percent) 25

Smoothness: Average each side not to exceed —
(Sheffield units, coated side) 25
(Sheffield units, uncoated side) 120

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Average not less than 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Coating shall be uniform; shall be uniformly applied; shall not be gritty, mottled, stippled, or ribbed in appearance; and shall not exhibit cracks or flake off.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 does NOT apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing of top covers for tablets, separators, wrapping for packages, etc. Printed matter may include text and line illustrations.

Stock: 100% unbleached sulphate pulp.

Note: Not less than 5% postconsumer fiber. Any percent over 5 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 24 by 36 inches, 500 sheets
(pounds) 40 50 60 70 80
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average
not less than (lb/in²) 28 34 38 42 47

Tearing strength:
Average each direction not
less than (grams)..... 70 90 110 130 150

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For printing on the ungummed side of the sheet in the production of labels, etc., requiring adhesion to glass, paper, wood and similar surfaces except silicon-treated glass. Printed matter may include text and line illustrations.

Stock: 100% chemical pulp.

*Note*¹: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches (ungummed),
500 sheets (pounds) 16 18 20
A tolerance of $\pm 5\%$ shall be allowed.

Adhesive quality: The adhesive shall be light in color and have a distinct (visual) color difference from the ungummed side. Gum shall not be obnoxious to taste or smell and be non-toxic. When properly moistened, the gummed paper shall adhere immediately and firmly to paper, cardboard, wood, and glass, except silicone-treated glass.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81% or as specified.

Color: The paper in the order shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

¹This is a specialty grade with low Government usage. A postconsumer fiber content for this grade is not practicable for cost and technological reasons.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing. To be used on specified optical scanners.

Stock: 100% chemical pulp.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible; provided the increase in reflectance, measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value average not less than 4.5

	<u>Bond</u>	<u>Bond</u>	<u>Bond</u>	<u>Ledger</u>	<u>Ledger</u>
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Basis weight:

17 by 22 inches, 500 sheets (pounds)	16	18	20	24	32
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A tolerance of $\pm 5\%$ shall be allowed.

Stiffness:

Average each direction not less than (milligrams) ..	30	40	50	100	200
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Tearing strength:

Average each direction not less than (grams).....	30	35	40	50	60
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Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 does NOT apply.

	<u>Bond</u>	<u>Bond</u>	<u>Bond</u>	<u>Ledger</u>	<u>Ledger</u>
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Opacity:
Average not less than (percent) 78 80 82 85 90
No individual specimen shall average less than (percent) 76 78 80 83 88

Thickness : Average (mils) 3.0 3.3 3.7 4.7 6.1
A tolerance ± 0.0005 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Porosity: Average not less than (seconds) .. 15

Smoothness: Average each side (Sheffield units) 170 to 100

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 10 parts per million (ppm). No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹This is a specialty grade and available in limited quantities with low Government usage. A postconsumer fiber content for this grade is not practicable for cost and technological reasons.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing. To be used on specified optical scanners.

Stock: 100% bleached chemical pulp.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible; provided the increase in reflectance, measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

Note¹: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

	<u>White</u>	<u>Violet</u>	<u>Gray</u>
Dimensional stability: Shall not exceed (percent change) —			
Machine direction	0.10	0.10	0.10
Cross direction.....	0.25	0.25	0.25

Basis weight: 17 by 22 inches, 500 sheets (pounds) 21 21 21
A tolerance of $\pm 5\%$ shall be allowed.

Stiffness: Average each direction not less than — (Gurley milligrams) 100 100 100

OR
(Taber, units) 1.2 1.2 1.2

Bursting strength: Average not less than (lb/in²) 25 25 25

Pick resistance: Average each side not less than 12-A Dennison wax number.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 does NOT apply.

	<u>White</u>	<u>Violet</u>	<u>Gray</u>
	82 to	91 to	92 to
Opacity: Average (percent)	85	94	95

Note: Opacity shall be uniform throughout the form.

Thickness: Average (mils) 4.5 4.5 4.5
A tolerance ± 0.0003 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Porosity: Average not less than (seconds) ... 30

Smoothness: Average each side (Sheffield units) 200 to 100

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0. The CIELAB values (Ill D65, 10° observer) of the color standards are:

	<u>White</u>	<u>Violet</u>	<u>Gray</u>
L* =	94.4	89.8	70.0
a* =	-0.8	1.0	9.0
b* =	3.8	1.0	9.0

Formation: Shall be extremely uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 10 parts per million (ppm). No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

¹This is a specialty grade and available in limited quantities with low Government usage. A postconsumer fiber content for this grade is not practicable for cost and technological reasons.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back offset printing. To be used on specified optical scanners.

Stock: 100% bleached chemical pulp.

No fluorescent (optical) brighteners shall be added to the pulp or paper during manufacture. Fluorescence, due to residual white water, broke, or natural fibers, is permissible; provided the increase in reflectance, measured with and without the ultraviolet component of a light source of 3100 Kelvin in combination with a C.I.E. (International Commission on Illumination) Z (blue) filter, does not exceed 2.0%.

*Note*¹: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Moisture content: Average (percent)..... 5.5
A tolerance of ± 0.3 percentage point shall be allowed.

Dimensional stability: Shall not exceed (percent change)
Machine direction..... 0.10
Cross direction..... 0.25

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 24
A tolerance of $\pm 5\%$ shall be allowed.

Stiffness: Average each direction not less than —
(Machine direction, Gurley milligrams) 200
(Cross direction, Gurley, milligrams) 100

OR
(Machine direction, Taber units) 3.7
(Cross direction, Taber units) 1.8

Bursting strength: Average not less than
(lb/in²) 19

Tearing strength: Average each direction not less than (grams) 65

Pick resistance: Average each side not less than 12-A
Dennison wax number.

Opacity: Average not less than (percent) 90
No individual specimen shall average less than (percent) 88

Thickness: Average (mils)..... 4.4
A tolerance ± 0.0003 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Porosity: Average not less than (seconds).... 15 to 45

Smoothness: Average each side
(Sheffield units) 200 to 100

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 81% or as specified. The reflectance in the 700 to 1,000 nanometer region shall average not less than 70% when measured with a print contrast meter.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 10 parts per million (ppm). No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 does NOT apply.

¹This is a specialty grade and available in limited quantities with low Government usage. A postconsumer fiber content for this grade is not practicable for cost and technological reasons.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For use in specified laser printers, high speed, plain paper copiers, xerographic equipment and products requiring archival quality.

Stock: 100% bleached chemical woodpulp.
Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points, is encouraged, provided that the requirements of this Standard are met.

Acidity: pH value by cold extraction shall be not less than 7.5. The paper shall contain not less than 2% calcium carbonate.
Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Moisture content: Average (percent) 4.5
 A tolerance of ± 0.5 percentage point shall be allowed.

Basis weight: 17 by 22 inches, 500 sheets (pounds) ... 20
 A tolerance of $\pm 5\%$ shall be allowed.

Stiffness: Average each direction not less than —
 (Machine direction, Gurley milligrams) 135
 (Cross direction, Gurley milligrams) 60
OR
 (Machine direction, Taber units) 1.9
 (Cross direction, Taber units) 0.9
Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Tearing strength: Average each direction not less than (grams) 40

Opacity: Average not less than (percent) 86
 No individual specimen shall average less than (percent) 84

Smoothness: Average each side (Sheffield units).... 190 to 130
Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to

curl or with a curl which can be overcome under reasonable working conditions.

Surface: Shall be free from lint, fuzz, wrinkles, waviness, folds, holes, tears and other detrimental defects.

Size and trim: Sheets: Paper shall be furnished in the size(s) ordered and shall be flat, trimmed square on four sides with clean smooth edges, and evenly jogged. A tolerance of $\pm 1/16$ inch shall be allowed except for sheets 8-1/2 by 14 inches or less, then a tolerance of $\pm 1/32$ shall apply. Successive sheets within any package shall not differ from each other by more than 1/32 inch. Paper shall be considered squared if the variation does not exceed 1/32 inch.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, the commercial color for the specified shade shall apply except when an exact match to one of the established color standards in Part 3 is required or to match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Performance: Shipments of any qualified product shall perform satisfactorily on laser printer and high speed xerographic equipment. There shall not be more than one paper caused jam or one document with unacceptable image quality due to the paper per 5,000 continuous-copy run at atmospheric conditions of 21 ± 5.5 °C and 50 $\pm 20\%$ relative humidity.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above. A Qualified Product indicates a brand name (or product name) has been tested and meets the requirements of the standard. Products should be retested periodically since manufacturers often change their product offerings.

ANSI/NISO: Conformance to the standard Z39.48—1992 (www.niso.org) permits the printing of the infinity symbol (∞) in the document or publication. Prior-to-production testing of the paper is recommended before inclusion as a Qualified Product.

¹This grade is available in limited quantities with low Government usage. See JCP O-65 or O-70 which is the commodity grade for plain copier, xerographic paper.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For use in producing camera ready copy; suitable for use in specified laser printers and high speed xerographic equipment.

Stock: 100% bleached chemical pulp.

Note¹: Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Moisture content: Average (percent) 4.5
A tolerance of ± 0.3 percentage point shall be allowed.

Basis weight: 17 by 22 inches,
500 sheets (pounds) 24 28
A tolerance of $\pm 5\%$ shall be allowed.

Stiffness: Average each direction not less than —
(Machine direction, Gurley milligrams).... 150 200
(Cross direction, Gurley milligrams) 75 100

OR

(Machine direction, Taber units) 2.4 3.0
(Cross direction, Taber units) 1.5 2.0

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Tearing strength: Average each direction
not less than (grams) 36 40

Opacity: Average not less than (percent) . 88 90
No individual specimen shall average less
than (percent) 86 88

Smoothness: Average each side not to
exceed (Sheffield units) 100

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above. A Qualified Product indicates a brand name (or product name) has been tested and meets the requirements of the standard. Products should be retested periodically since manufacturers often change their product offerings.

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

Surface: Shall be free from lint, fuzz, wrinkles, waviness, folds, holes, tears and other detrimental defects.

Size and trim: Sheets: Paper shall be furnished in the size(s) ordered and shall be flat, trimmed square on four sides with clean smooth edges, and evenly jogged. A tolerance of $\pm 1/16$ inch shall be allowed except for sheets 8-1/2 by 14 inches or less, then a tolerance of $\pm 1/32$ shall apply. Successive sheets within any package shall not differ from each other by more than 1/32 inch. Paper shall be considered squared if the variation does not exceed 1/32 inch.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 86% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 25 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Performance: Shipments of any qualified product shall perform satisfactorily on laser printer and high speed xerographic equipment. There shall not be more than one paper caused jam or one document with unacceptable image quality due to the paper per 5,000 continuous-copy run at atmospheric conditions of 21 ± 5.5 °C and 50 $\pm 20\%$ relative humidity.

¹ This grade has limited availability with a postconsumer fiber content for the intended use “to create camera ready copy.” For other applications, the ordering agency may specify a more environmentally-preferable paper by including specific language in the solicitation and/or adjusting the **Stock** requirement for postconsumer fiber content.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For use in specified laser printers, high speed, plain paper copiers and xerographic equipment.

Stock: Ground woodpulp not to exceed 1%.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Moisture content: Average (percent) 4.5
A tolerance of ± 0.5 percentage point shall be allowed.

Basis weight: 17 by 22 inches,
500 sheets (pounds) 20 24 28
A tolerance of $\pm 5\%$ shall be allowed.

Tearing strength: Average each
direction not less than (grams) 36 38 42

Opacity: Average not less than
(percent) 90 91 93
No individual specimen shall average
less than (percent) 88 89 91

Thickness: Average (mils) 3.7 4.1 4.7
A tolerance of ± 0.0003 inch shall be allowed. Paper shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Curl: Paper shall lie flat before and after processing through a high speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

Surface: Shall be free from lint, fuzz, wrinkles, waviness, folds, holes, tears and other detrimental defects.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above. A Qualified Product indicates a brand name (or product name) has been tested and meets the requirements of the standard. Products should be retested periodically since manufacturers often change their product offerings.

Size and trim: Sheets: Paper shall be furnished in the size(s) ordered and shall be flat, trimmed square on four sides with clean smooth edges, and evenly jogged. A tolerance of $\pm 1/16$ inch shall be allowed except for sheets 8-1/2 by 14 inches or less, then a tolerance of $\pm 1/32$ shall apply. Successive sheets within any package shall not differ from each other by more than 1/32 inch. Paper shall be considered squared if the variation does not exceed 1/32 inch.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed $DE(CIELAB) = 1.0$. The commercial color for the specified shade shall apply except when an exact match to one of the established color standards in Part 3 is required or to match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 100 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Performance: Shipments of any qualified product shall perform satisfactorily on laser printer and high speed xerographic equipment. There shall not be more than one paper caused jam or one document with unacceptable image quality due to the paper per 5,000 continuous-copy run at atmospheric conditions of 21 ± 5.5 °C and 50 $\pm 20\%$ relative humidity.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For use in specified laser printers, high speed, plain paper copiers and xerographic equipment.

Stock: Ground woodpulp not to exceed 1%.

*Note*¹: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Moisture content: Average (percent) 4.5
A tolerance of ± 0.5 percentage point shall be allowed.

Basis weight: 17 by 22 inches,
500 sheets (pounds) 20
A tolerance of $\pm 5\%$ shall be allowed.

Stiffness: Average each direction not less than —
(Machine direction, Gurley milligrams) 135
(Cross direction, Gurley milligrams) 60

OR
(Machine direction, Taber units) 1.9
(Cross direction, Taber units) 0.9

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Tearing strength: Average each direction not less than (grams) 36

Opacity: Average not less than (percent) ... 86
No individual specimen shall average less than (percent) 84

Smoothness: Average each side
(Sheffield units) 190 to 130

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Curl: Paper shall lie flat before and after processing through a high-speed copier or laser printer with either no tendency to curl or with a curl which can be overcome under reasonable working conditions.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above. A Qualified Product indicates a brand name (or product name) has been tested and meets the requirements of the standard. Products should be retested periodically since manufacturers often change their product offerings.

Surface: Shall be free from lint, fuzz, wrinkles, waviness, folds, holes, tears, and other detrimental defects.

Size and trim: Sheets: Paper shall be furnished in the size(s) ordered and shall be flat, trimmed square on four sides with clean smooth edges, and evenly jogged. A tolerance of $\pm 1/16$ inch shall be allowed except for sheets 8-1/2 by 14 inches or less, then a tolerance of $\pm 1/32$ shall apply. Successive sheets within any package shall not differ from each other by more than 1/32 inch. Paper shall be considered squared if the variation does not exceed 1/32 inch.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, the commercial color for the shade shall apply except when specified that an exact match to one of the established color standards in Part 3 is required or to match a color sample supplied by the ordering agency. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. The sheet shall not be 2-sided.

Formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 250 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Performance: Shipments of any qualified product shall perform satisfactorily on laser printer and high speed xerographic equipment. There shall not be more than one paper caused jam or one document with unacceptable image quality due to the paper per 5,000 continuous-copy run at atmospheric conditions of 21 ± 5.5 °C and 50 $\pm 20\%$ relative humidity.

¹Alternatively, the ordering agency may specify a more environmentally-preferable paper by including specific language in the solicitation and/or adjusting the **Stock** requirement for higher postconsumer fiber content

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For use in specified laser printers, high speed, plain paper copiers and xerographic; for products of a non-permanent nature. May contain foreign or “dirt” particles embedded in the surface of the paper.

Stock¹: Not less than 100% total recovered fiber of which at least 50% shall be postconsumer fiber. Postconsumer fiber in any percent over 50 percentage points are encouraged, provided that the requirements of this Standard are met.

Moisture content: Average (percent) 4.5
A tolerance of ± 0.5 percentage point shall be allowed.

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 20 24
A tolerance of $\pm 5\%$ shall be allowed.

Stiffness: Average each direction not less than —
Machine direction (Gurley milligrams) 130 150
Cross direction (Gurley milligrams) 65 75

OR
Machine direction (Taber units) 1.9 2.2
Cross direction (Taber units) 0.9 1.1

Note: Any deviation in this requirement is sufficient cause for rejection of the paper.

Tearing strength: Average each direction not less than (grams) 30 50

Opacity: Average not less than (percent) 86 90
No individual specimen shall average less than (percent) 84 88

Smoothness: Average each side (Sheffield units) 190 to 130

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above. A Qualified Product indicates a brand name (or product name) has been tested and meets the requirements of the standard. Products should be retested periodically since manufacturers often change their product offerings.

Curl: Paper shall lie flat before and after processing through a high-speed copier or laser printer with either no tendency to curl or with a curl, which can be overcome under reasonable working conditions.

Surface: Shall be free from lint, fuzz, wrinkles, waviness, folds, holes, tears and other detrimental defects.

Size and trim: Sheets: Paper shall be furnished in the size(s) ordered and shall be flat, trimmed square on four sides with clean smooth edges, and evenly jogged. A tolerance of $\pm 1/16$ inch shall be allowed except for sheets 8-1/2 by 14 inches or less, then a tolerance of $\pm 1/32$ shall apply. Successive sheets within any package shall not differ from each other by more than 1/32 inch. Paper shall be considered squared if the variation does not exceed 1/32 inch.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: Shall target 82% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed $DE(CIELAB) = 1.0$.

Formation: Shall be uniform.

Cleanliness: Shall match the Government standard.

Performance: Shipments of any qualified product shall perform satisfactorily on laser printer and high speed xerographic equipment. There shall not be more than one paper caused jam or one document with unacceptable image quality due to the paper per 5,000 continuous-copy run at atmospheric conditions of 21 ± 5.5 °C and 50 $\pm 20\%$ relative humidity.

¹Alternatively, the ordering agency may specify a more environmentally-preferable paper by including specific language in the solicitation and/or adjusting the **Stock** requirement for higher postconsumer fiber content.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For offset printing. Generally for use on multiple copies of forms, etc., eliminating the need for carbon paper. Printed matter may include text, lines and rules.

Stock: Free from ground woodpulp and any polychlorinated biphenyls.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

CB CFB CF

Basis weight: 17 by 22 inches, as specified in
500 sheets (pounds) Solicitation
A tolerance of $\pm 5\%$ shall be allowed.

Opacity: Average not less than (percent) 81

Ruling and writing quality: Lines ruled and characters written with ball point and felt tip pens on the face of the CB part shall be clear cut and free from excessive feathering.

Performance (reproducibility): Each part in a set shall be legible and the characters can be clearly read when written on the CB part with pencil, ballpoint pen, or with any impact typewriter. The images shall be permanent.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 does NOT apply.

CB = coated back; CFB = coated face and back; and CF = coated face: Coating contains microscopic capsules of a colorless dye.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white paper shall target not less than 79% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards. Standards are blue, buff, green, goldenrod, pink, salmon or yellow. Colors shall not fade or transfer (rub off) and shall appear even and uniform on the surface of the sheet. When a match to a specific Government color standard has not been designated, the commercial shade or white shall apply. Color coordinated for selected standards are included in Part 3.

Finish and formation: Shall be uniform.

Cleanliness: The dirt count for each side of the paper shall not exceed 650 specks per square meter. No sample sheet (600 to 650 cm² in size) shall contain more than one defect with equivalent area of 0.25 mm² or greater.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For multicolor face and back offset printing of manuals, maps, tags, outdoor billboards, etc., requiring a high degree of tear resistance including resistance to action of water, mild aqueous solutions, grease, oils, extreme climatic temperatures, frequent handling, discoloration and durability. Printed matter may include text, line illustrations and halftones up to 175-line screen.

Stock: Shall be a non-cellulose substrate.

Note: Recovered material in any percentage is encouraged, provided that the requirements of this Standard are met.

Caliper: Nominal (mils)..... 4 5.5 7 8.5

Folding endurance: Average each direction not less than (MIT double folds) 4,000

Aged film: Average each direction not less than 50% of the unaged film or (MIT double folds) ... 4,000

Opacity: Average not less than (percent) 90 92 94 96

Surface: The film shall not flake, powder, crack, blister, or otherwise deteriorate under print or other handling conditions, shall not discolor, become brittle, or be subject

to attack by mold, mildew, or fungus under normal conditions, and shall be uniform, free from mottle, and from any particles that will pick, lift, fluff, or pile on use under normal conditions.

Aged film: The L* component of the color shall not decrease more than 3 percentage points.

General appearance: Film shall conform to the standard sample(s) established by the Government.

Brightness: Shall target not less than 86% or as specified.

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Finish and formation: Shall be uniform.

Cleanliness: The film shall be clean.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above. A Qualified Product indicates a brand name (or product name) has been tested and meets the requirements of the standard. Products should be retested periodically since manufacturers often change their product offerings.

Aged film: Age material for 48 hours in an Atlas fadeometer or equivalent with a carbon arc.

PPG Teslin[®] SP (www.teslin.com)

Arjobex Polyart[®] (www.polyart.com)

YUPO[®] (www.yupo.com)

AET SynCarta[™] SLC (www.syncarta.com)

HOP-SYN[®] II DURA-LITE (www.hopindustries.com)

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For multicolor face and back offset printing of manuals, maps, tags, outdoor billboards, etc., requiring a high degree of tear resistance and durability. Printed matter may include text, line illustrations and halftones up to 175-line screen.

Stock: Shall be a cellulose – based substrate.
Note: Recovered material in any percentage is encouraged, provided that the requirements of this Standard are met.

from mottle, and from any particles that will pick, lift, fluff or pile on use under normal conditions.

Caliper: Nominal (mils)..... 4 5 6 8

Aged paper: The L* component of the color shall not decrease more than 3 percentage points.

Tearing strength: Average machine direction not less than (grams) 60 80 100 140

General appearance: Paper (film) shall conform to the standard sample(s) established by the Government.

Brightness: Shall not less than target 85% or as specified.

Opacity: Average not less than (percent) 90 91 92 94

Color: The paper in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

Surface: The paper shall not deteriorate under print or other normal handling conditions; shall be uniform, free

Finish and formation: Shall be uniform.

Cleanliness: The paper (film) shall be clean.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply except as noted above. A Qualified Product indicates a brand name (or product name) has been tested and meets the requirements of the standard. Products should be retested periodically since manufacturers often change their product offerings.

Aged paper: Age material for 48 hours in an Atlas fadeometer or equivalent with a carbon arc.

Tru-Tech™ (www.tru-techfinepapers.com)

Arlon Duralon™ (www.arlon.com/ecp/duralon.asp)

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For face and back offset printing of file folders, tickets, tags, cards, notices, signs, covers, for books and pads, etc., requiring strength and durability. Printed matter may include text, line illustrations and solid reverses.

Stock: Free from ground woodpulp.

Note: Not less than 20% postconsumer fiber. Any percent over 20 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 24 by 36 inches, 500 sheets
(pounds) 150
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less
than (lb/in²) 100

General appearance: The color, finish, and cleanliness shall conform to the standard sample(s) established by the Government.

Color: The paperboard in the order (or publication) shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0. Paper shall be manila or match the color sample supplied by the ordering agency. The commercial color standard is applicable, unless specified that the color shall conform to the Government standard. Colors shall not fade and shall appear even and uniform on the surface of the sheet.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For face and back offset printing of file folders, etc., requiring strength and durability. Printed matter may include text, line illustrations and solid reverses.

Stock: 100% sulphate pulp.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 24 by 36 inches,
500 sheets (pounds) 105 150 165 250
A tolerance of $\pm 10\%$ shall be allowed.

Stiffness: Gurley average not less than (milligram) —
Machine direction 2000 5000 6000 14000
Cross direction 800 1500 2000 7500

Thickness: Average (mils) .. 8 11 14 18
A tolerance of ± 0.001 inch shall be allowed.

Tearing strength: Average not less than (grams) —
Machine direction 150 250 350 400
Cross direction 200 300 400 500

Ruling and writing quality: Lines ruled and characters written with pen and ink shall be clear cut and free from excessive feathering.

General appearance: The color, finish and cleanliness shall conform to the standard sample(s) established by the Government.

Color: The paperboard in the order shall be uniform and the color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, paper shall match one of the established color standards or match the color sample supplied by the ordering agency. The commercial color standard is applicable, unless specified that the color shall conform to the Government standard. Colors shall not fade and shall appear even and uniform on the surface of the sheet.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For offset printing of signs, display cards, cloth or paper-stripped covers or two-piece covers for use with bindings such as plastic combs, wire-o and spiral. Printed matter may include text, line illustrations and solid reverses.

Stock: Facing sheets shall be uncoated and shall not exceed 25% ground woodpulp.

Note: Not less than 80% total recovered fiber of which 15 percentage points shall be postconsumer fiber. Postconsumer fiber in any percent over 15 percentage points are encouraged, provided that the requirements of this Standard are met.

Thickness: Average (mils)	18.0	30.0	48.0
Tolerance (\pm inch)	0.001	0.002	0.0025

Curl: Paperboard shall lie flat with either no tendency to curl or with a curl which can be overcome, under reasonable working conditions.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

General appearance: The color and cleanliness shall conform to the standard sample(s) established by the Government.

Brightness: Shall target not less than 79% or as specified.

Color: The paperboard in the order (or publication) shall be uniform. The color variation shall not exceed DE(CIELAB) = 1.0.

For colored stock, board shall be ash gray, blue, buff, green, orange, red or match the color sample supplied by the ordering agency. The commercial color standard is applicable unless specified that the color shall conform to the Government standard. Color shall not fade and shall appear even and uniform on the surface of the sheet.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back printing of file folders, cards, open forms and covers for books and manuals requiring strength and durability. Printed matter may include text, line illustrations and solid reverses.

Stock: 100% chemical woodpulp.

Note: Not less than 50% recovered fiber. Postconsumer fiber in any percentage is encouraged, provided that the requirements of this Standard are met.

Basis weight: 22-1/2 by 28-1/2 inches,
500 sheets (pounds) 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²).. 80

Tearing strength: Average total both direction
not less than (grams) 520

Thickness: Average (mils) 9.8
A tolerance of ± 0.0005 inch shall be allowed. Paperboard shall be uniform and shall not vary more than 0.0004 inch from edge to edge.

Water resistance: Average not less than (minutes) ... 5

Abrasion: The abrasion loss shall be no greater than the standard sample when tested dry.

Curl: Paperboard shall lie flat with either no tendency to curl or with a curl which can be overcome, under reasonable working conditions.

General appearance: The color, finish and cleanliness shall conform to the standard sample(s) established by the Government.

Color: The paperboard in the order shall be uniform. The color variation shall not exceed DE(CIELAB) = 1.0.

Board shall match the blue or tan standard or match the color sample supplied by the ordering agency. The commercial color standard is applicable unless specified that the color shall conform to the Government standard. Colors shall not fade and shall appear even and uniform on the surface of the board.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back printing of file folders, expansion wallets, loose leaf or cloth-stripped covers for composition books. Printed matter may include text and line illustrations.

Stock: Principally chemical pulp; the remainder free from ground woodpulp.

Note: Not less than 20% postconsumer fiber. Any percent over 20% percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 24 by 36 inches,
500 sheets (pounds) 160
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not
less than (lb/in²)..... 115

Writing quality: Characters written with ballpoint and felt tip pens shall be clear-cut.

Curl: Paperboard shall lie flat with either no tendency to curl or with a curl which can be overcome, under reasonable working conditions.

General appearance: The color, finish and cleanliness shall conform to the standard sample(s) established by the Government.

Color: The paperboard in the order shall be uniform. Board shall match the commercial standard for red or as specified. Colors shall not fade.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back printing of filing guides, cloth or paper-stripped covers, and two-piece covers for use with bindings such as combs, wire-o and spiral. Printed matter may include text, line illustrations and solid reverses.

Stock: *Not less than 50% recovered fiber of which 20 percentage points shall be postconsumer fiber. Postconsumer fiber in any percentage over 20 percentage points are encouraged, provided that the requirements of this Standard are met.*

Surface: Shall be close in texture, hard, smooth and free from irregularities and blisters.

Curl: Paperboard shall lie flat with either no tendency to curl or with a curl which can be overcome, under reasonable working conditions.

Bursting strength: Average not less than (lb/in²) 170 190 210

General appearance: The color and cleanliness shall conform to the standard sample(s) established by the Government.

Thickness: Average (mils) 15 20 25

Color: The paperboard in the order shall be uniform. Board shall match the established Government standard for blue, light green, red, or match the color sample supplied by the ordering agency. The commercial color standard is applicable, unless specified that the color shall conform to the Government standard. Colors shall not fade and shall appear even and uniform on the surface of the sheet.

A tolerance of ±0.001 inch shall be allowed for the 15- and 20-mil pressboard. For the 25-mil board, a tolerance of -0.001 inch and +0.0015 inch shall be allowed.

Density: Average (g/cm³) 0.8 to 1.0

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The “precision requirements” of the acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For face and back printing of filing guides, cloth or paper-stripped covers and two-piece covers requiring additional strength and stiffness for use with bindings such as combs, wire-o and spiral. Printed matter may include text, line illustrations and solid reverses.

Stock: *Not less than 50% recovered fiber of which 20 percentage points shall be postconsumer fiber. Postconsumer fiber in any percentage over 20 percentage points are encouraged, provided that the requirements of this Standard are met.*

Surface: Shall be close in texture, hard, smooth, and free from irregularities and blisters.

Curl: Paperboard shall lie flat with either no tendency to curl or with a curl which can be overcome, under reasonable working conditions.

Bursting strength: Average not less than (lb/in²) 180 200 220

General appearance: The color and cleanliness shall conform to the standard sample(s) established by the Government.

Thickness: Average (mils) 15 20 25

Color: The paperboard in the order shall be uniform. Board shall match the established Government standard for blue, light green, red, or match the color sample supplied by the ordering agency. The commercial color standard is applicable, unless specified that the color shall conform to the Government standard. Colors shall not fade and shall appear even and uniform on the surface of the sheet.

A tolerance of ±0.001 inch shall be allowed for the 15- and 20-mil pressboard. For the 25-mil board, a tolerance of -0.001 inch and +0.0015 inch shall be allowed.

Density: Average (g/cm³) 1.4 to 1.6

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The “precision requirements” of the acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For backing of pads and tablets and top and bottom protection in packaging.

Stock: *Not less than 80% postconsumer fiber. Any percent over 80 percentage points are encouraged, provided that the requirements of this Standard are met.*

Basis weight: 26 by 38 inches, 50 pounds
(number) sheets 100
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than (lb/in²) ... 50

Thickness: Average (mils) 20
A tolerance of -0.001 inch and +0.002 inch shall be allowed.

Curl: Paperboard shall lie flat with either no tendency to curl or with a curl which can be overcome, under reasonable working conditions.

General appearance: The surface and cleanliness shall conform to the standard sample(s) established by the Government.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use.

For production of rigid bindings of ledger and text books when covered with materials such as buckram, fabrikoid, drilling, book cloth, etc.

Stock: *Not less than 80% postconsumer fiber. Any percent over 80 percentage points, is encouraged, provided that the requirements of this Standard are met.*

Basis weight: 25-1/4 by 30-1/4 inches,
50 pounds (number) sheets 9 12 17 19 21 25 31 41
A tolerance of $\pm 6\%$ shall be allowed.

Bursting strength: Average not less
than (lb/in²) 800 600 450 425 385 315 255 210

Thickness: Average (inch) 0.22 0.17 0.12 0.11 0.098 0.08 0.065 0.049

A tolerance of ± 0.003 inch shall be allowed; except for No. 9 and 12 board, then a tolerance of $\pm 5\%$ shall be allowed. On boards with the shorter dimension over 32 inches, an additional 50% of the above thickness tolerance shall be allowed

Density: Average (g/cm³) 0.8 to 1.0

Curl: Paperboard shall lie flat with either no tendency to curl or with a curl which can be overcome, under reasonable working conditions.

Size and trim: Sufficient trim of not less than 0.5 inch shall be allowed on both dimensions of the sheet. Board shall be trimmed square on all four sides with smooth edges.

General appearance: The surface shall be free from surface lumps, clip indentations, and mechanical imperfections, and be reasonably smooth and flat.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. The acceptance criteria Part 4 shall apply.

Writing quality: Characters written with pen and ink shall be clear cut and free from excessive feathering.

Flap adhesive: The remoistenable adhesive on the sealing flaps of the envelopes shall have a minimum thickness of 0.0006 inch uniformly applied. The flap shall not stick to the body of the envelope, but shall be capable of being quickly and securely sealed using 5 pounds of pressure after moistening. When opened not less than 15 seconds or more than 20 seconds, after sealing, the flap shall pull fibers from the body of the envelope over the entire adhesive area.

The adhesive shall be able to resist the heat and pressure of common office laser printers, so the flap adhesive does not become soft and tacky causing the flap to stick to the body of the envelope.

Size: The size of the envelope shall be as specified. A tolerance of minus 0 inch and +1/8 inch.

General appearance: Envelopes shall conform to the standard samples(s) adopted by the Government.

Color: Envelopes shall be a uniform shade throughout the order.

Cleanliness: No envelop (up to 300 cm² in size) shall contain more than two obvious and objectionable foreign particles with an equivalent area of 0.25 mm² or greater on the face of the envelope. The number of particles permitted is proportionately higher for larger envelope sizes.

Pressroom conditions: The bulk of these envelopes will be used in air-conditioned pressrooms maintained at 24°C ±2°C and 45% ±8% relative humidity or offices with atmospheric conditions of 21 ±5.5°C and 50% ±5% relative humidity.

¹ The above requirements are an integral part of each envelope standard (the V-series.)

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For the insertion of correspondences, pamphlets, etc., manually or automated equipment. Suitable for letterpress and offset printing, processing in laser printers, automated mailing, sorting equipment. Printed matter may include text and line illustrations.

Stock: 100% sulphate pulp.

Note: Not less than 20% postconsumer fiber. Any percent over 20 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches,
500 sheets (pounds) 24 28 32 40
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not
less than (lb/in²) 38 44 50 60

Writing quality: Characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Color: Shall be light-brown kraft shade.

Finish: Envelopes shall have a smooth-finish.

Cleanliness: Shall be clean with no objectionable foreign particles on the surface that would detract from its usability.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. Additionally, see page 115. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For the insertion of correspondences, etc., manually or automated equipment. Suitable for letterpress and offset printing, processing in laser printers, automated mailing, sorting equipment. Printed matter may include text and line illustrations.

Stock: Ground woodpulp not to exceed 1%; the remainder bleached chemical pulp.

Note: Not less than 30% postconsumer fiber. Any percent over 30 percentage points are encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 20 24
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than
(lb/in²) 20 24

Opacity: Average not less than (percent) 86 87
No individual specimen shall average less than
(percent) 84 85

Writing quality: Characters written with ball point and

felt tip pens shall be clear cut and free from excessive feathering.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The white envelopes shall have a brightness of not less than 82%.

Colored envelopes: The commercial shade for the color specified shall applied except when an exact match to one of the established “business” color standards in Part 3 is required or to match a color sample supplied by the ordering agency.

Finish: Envelopes shall have a wove-finish.

Cleanliness: Shall be clean with no objectionable foreign particles on the surface that would detract from its usability.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. Additionally, see page 115. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For the insertion of correspondences, etc., manually or in automated equipment, to match office stationery. Suitable for letterpress and offset printing, processing in laser printers, automated mailing, sorting equipment. Printed matter may include text and line illustrations.

Stock: Not less than 25% cotton or linen fibers. Ground woodpulp not to exceed 1%.

Note: Postconsumer fiber in any percentage point is encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 20 24
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than
(lb/in²) 20 24

Opacity: Average not less than (percent) 85 86

No individual specimen shall average less than
(percent) 83 84

Writing quality: Characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The envelopes shall have a brightness of not less than 82%.

Finish: Envelopes have a light cockle finish.

Cleanliness: Shall be clean with no objectionable foreign particles on the surface that would detract from its usability.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. Additionally, see page 115. The acceptance criteria Part 4 shall apply.

Use Information: This paragraph is informational only and is not exclusively definitive of the end use. For the insertion of correspondences, etc., manually or in automated equipment, to match office stationery. Suitable for letterpress and offset printing, processing in laser printers, automated mailing, sorting equipment. Printed matter may include text and line illustrations.

Stock: White spunbonded polyethylene with the characteristics of DuPont's product No. 1073.

Note: Not less than 25% postconsumer material. Any percent over 25 percentage points, is encouraged, provided that the requirements of this Standard are met.

Basis weight: 17 by 22 inches, 500 sheets
(pounds) 18
A tolerance of $\pm 5\%$ shall be allowed.

Bursting strength: Average not less than
(lb/in²) 140

Opacity: Average not less than (percent) 87

Thickness of single layer of polyethylene:
Average (mils) 7.0
A tolerance of ± 0.001 inch shall allowed.

Writing quality: Characters written with ball point and felt tip pens shall be clear cut and free from excessive feathering.

General appearance: Paper shall conform to the standard sample(s) established by the Government.

Brightness: The envelopes shall have a brightness of not less than 81%.

Finish: Similar to the commercial TYVEK™ product.

Cleanliness: Shall be clean with no objectionable foreign particles on the surface that would detract from its usability.

Testing: Shall be conducted in accordance with methods in Part 2, *Government Paper Specification Standards*. Additionally, see page 115. The acceptance criteria Part 4 shall apply.

Part 2.

TESTING STANDARDS

AND

DEFINITION OF TERMS

TESTING STANDARDS AND DEFINITION OF TERMS

General Information: The methods given in this Part of the Standards are required to be used in measuring the characteristics of papers that are specified in Part 1, Specifications. Alpha-numeric citations of methods refer to the methods of the Technical Association of the Pulp and Paper Industry (TAPPI), unless otherwise indicated. Testing laboratories are advised to provide themselves with current editions of all methods. Methods of TAPPI can be obtained from TAPPI, www.tappi.org. Methods of the American Society for Testing and Materials (ASTM) can be obtained from www.astm.org. Sources of other methods are given in the text.

Paper suppliers are required to make such tests as may be necessary, to ensure the delivery of finished paper fully complies with the applicable specifications and standard samples. When requested by the procuring office, copies of the records developed by the paper supplier in making such test shall be furnished. All paper, including paper in the manufacturing process, is subject to inspection as authorized by the contracting office.

Abrasion: Use method T—476.

Absolute moisture: Use method T—412.

Acidity (pH): (a) For uncoated papers, unless otherwise stated use method T—435. To make the test, weigh a specimen of 1.8 grams and add 125 ml of distilled water. (b) For coated papers, use T—435, except to prepare the test specimen: use a razor blade and scrape the coating from an area from 5 paper specimens until a sample weight 0.12 gram is accumulated. Place the sample in a clean beaker, add 50 ml of distilled water, let the coating sit and soak for one hour before taking the pH. (c) For a “cold extraction,” use method T—509.

Alkaline paper: Paper which has a pH value greater than 7; stock made by an alkaline manufacturing process. Paper longevity is enhanced.

ANSI: American National Standards Institute or www.ansi.org.

Basis weight: Use method T—410.

BCTMP: Bleached “chemi-thermo-mechanical pulp (CTMP)”. It is pulp that has been bleached to a higher brightness, usually greater than 80%. CTMP is a pulp produced by a less vigorous chemical process (lower temperature, shorter time, less extreme pH) and much of the lignin-component of the wood has not been removed.

Bleached: Process in which papermaking fibers are chemically treated to whiten, purify and stabilize the fiber.

Blocking: Use method D—918 of ASTM with the following modification. Take rectangular specimens 4-1/2 by 6 cm. Use a top plate and weight such that the total mass is equivalent to 70 g/cm² on the specimens for uncoated paper and 9 g/cm² for coated paper. Prepare the specimens by soaking them in water at

25 ±5 °C temperature for 15 minutes. Ensure the water has free access to both sides of the each specimen. Remove the specimens from the water; shake each specimen gently to remove the excess water from the surface. Restack the specimens and allow the assembly to dry at 25 ±5 °C.

Brightness: Use method T—452.

Bursting strength: (a) For papers with bursting strengths less than 200 lbs/in², use method T—403; greater than 200 lb/in², use method T—807. (b) For the wet burst test, heat the cut specimens in an oven 105 °C for 15 minutes. Immediately soak the specimens in water at 23 ±2 °C temperature for 60 minutes and blot in accordance with method T—456. Test specimen per T—403 or T—807, as appropriate.

Calcium carbonate: See filler.

Chemical pulp: Wood chips treated with chemicals to remove impurities such as lignin, resins, gums, etc. to be use for papermaking. There are two basic types: sulfite and sulfate (kraft) and variations of these. See stock.

Chlorine-free: A term used to describe a bleaching process. Two types are associated with a chlorine-free paper: “elemental chlorine-free (ECF)” or “totally chlorine-free (TCF).” An ECF paper is made from pulp bleach with chlorine dioxide, but not elemental chlorine; whereas, TCF paper is made from pulp bleached without using chlorine or chlorine compounds (and this includes the recycled fiber component of the paper.)

Cleanliness: See dirt, speck.

Color by visual comparison: Use method T—515. Visual color assessments are made in a light booth with light sources having color temperature of 5000 and 7500 degrees Kelvin. Overall matches are described as “fair plus or good (or 0 demerits),” fair (or 4 demerits),” “fair minus or marginal (or 12 demerits),” and “unacceptable (or 36 demerits).”

Color by spectral reflectance: Use T—524 and equations for CIELAB.

Color deviation and variation: Calculate using the CIELAB equations described in TAPPI TIS 0804-04. Measurements are made under the following conditions: Ill D65, 10° observer with specular component included.

Conditioning for testing: Use method T—402. The atmosphere in the immediate vicinity of the testing apparatus shall be controlled to the required conditions during the test.

Cotton fiber paper: Paper containing at least 25% or more fibers derived from lint cotton, cotton linters, cotton or linen cloth cuttings.

These papers fall in the broad category of paper containing “recovered material.”

Dealing with outlying test determinations: Use method T—1205.

Defects in paper by visual examination: Insofar as practicable, defects in paper which are determined by visual examination shall be classified and defined in accordance with the *Dictionary of Paper* published by TAPPI.

Density: Measure the thickness of the specimen in centimeters in per method T—411. Measure the weight of the specimen in grams per square centimeter per method T—410. Divide the weight by the thickness and report the density in “g/cm³.”

Dirt: Use method T—437.

ECF: See chlorine-free.

Equilibrium relative humidity: Use method T—502.

Erasing quality: The term “erasing quality” shall be construed to mean the retention of good writing quality and appearance of surface after complete erasure of inked lines using a “hard” eraser such as Eberhard Faber^R Union 110, Faber Castell Eraser Stick^R 7099B, Weldon Roberts No. 38 or equivalent. Additionally, for map paper, the texture shall permit redrawing of sharp lines in ink after burnishing.

Filler: The percent calcium carbonate in the filler shall be determined as follows using method T—553.

Fluorescence: See optical brightener.

Folding endurance: Use method T—511.

Formaldehyde: Use method 111, “Tentative Method of Analysis for Formaldehyde Content of the Atmosphere (Colorimetric Method)” (43502-01-69T), by the Intersociety Committee, Methods of Air Sampling and Analysis, American Public Health Association, pp 194-198 or www.apha.org.

Gloss: Use method T—480 for 75° and T—653 for 20°.

Grain: See machine direction.

Ground woodpulp: Paper making fiber produced by mechanical means. This fiber is not the same as bleached chemi-thermo-mechanical pulps (BCTMP) which is a semi-chemical pulp. See stock.

Light transmission: Use method E—308 of ASTM.

Lignin: There percent lignin in paper shall be determined spectrophotometrically as follows:

- (1) Remove the calcium carbonate filler from a 5 by 5 centimeter paper sample by soaking it in hot (99 °C) 0.1 N HCl until effervescence is complete.
- (2) Rinse the paper sample with distilled water.
- (3) Place the sample in an 85 °C oven (for a few minutes) to dry it.
- (4) Trim the paper to fit the sample hold of the spectrophotometer.
- (5) Clamp the paper sample which has been moistened with a drop of tetrachloroethylene between the potassium bromide windows.
- (6) Obtain an infrared (IR) spectrum by averaging 50 scans with a Fourier transform IR spectrometer.
- (7) IR spectra data must be expressed in “absorbance” rather than “transmittance.” The background spectrum (air blank) should be no more than two hours old.
- (8) Calculate lignin using the following equation:

Percent lignin (of fibrous material)

$$= (L/C + 0.033) \times 132.45$$

Where

L= the integrated area bounded by the IR absorption band and baseline from 1540 cm⁻¹ to 1490 cm⁻¹

C= the integrated area bounded by the IR absorption band and base line from 3000 cm⁻¹ to 2800 cm⁻¹

Machine direction: Use method T—409.

NISO: National Information Standards Organization or www.niso.org.

Oil holdout (of coating): Use method T—462, except the end point shall be evaluated at 200 seconds. When viewing from the underside of the paper in the mirror of the apparatus, record the time it takes for the oil to penetrate the coating or at 200 seconds, “did the oil penetrate the coating of the paper?” Report either the number of seconds it took the oil to penetrate the coating or report as 200+ if there is not penetration at 200 seconds. Note, the endpoint for this test is not the same as the endpoint for oil penetration described in the method.

Oil penetration: Use method T—462.

Opacity: Use method T—425.

Optical brightener: Use method T—452, appendix C.

Permanent paper: (a) A stock that can resist chemical and physical changes over an extended time period (e.g. several hundreds of years.) This paper is acid-free, has a high initial strength and retains its strength over time. (b) Pub. L. 101-423, Joint Resolution to Establish a National Policy on Permanent Paper was passed October 1990, and states “It is the policy of the United States that Federal

records, books, and publication of enduring value be produced on acid-free permanent papers.”

Pick resistance: Use method T—459.

PMU (Phosphor meter unit): Critical property in substrates used to the mail stream. Specialized equipment furnish by the U.S. Postal Service to monitor the property.

Porosity: Use method T—460.

Postconsumer fiber: Fiber derived from material that has passed through the end user or consumer.

Recovered material: See definitions in Solid Waste Disposal Act (Pub. L. 89-272) Sec. 6002, (h) Definitions.

RCRA: Resource Conservation and Recovery Act (Pub. L. 94-580); the beginning of establishing environmentally preferable standards for printing papers.

“Recycled” content paper: This term is not specifically defined in any statute but has come to mean paper containing any of the following recovered material categories: pre- and post-consumer fiber, pre- and post- manufacturing or industrial fiber, cotton or linen fiber, etc.

Reflectance (brightness) drop: Measure brightness at a specific spot using method T—452. Expose the spot with a water-cooled xenon-arc lamp, continuous lamp fading apparatus for 48 standard fading hours per method 16E of the American Association of Textile Chemists and Colorist (www.aatcc.org). Recondition the sheet in the standard atmosphere and re-measure the brightness of the spot. The reflectance drop is the difference between the before and after exposure to the xenon-arc lamp.

Rosin: Use method T—408.

Sampling: Sampling shall be conducted in accordance with method T—400. Agencies shall specify detailed plans and criteria for acceptance or rejection, tailored to specific end product, grades, end uses or other particular situation. Agencies may also specify detailed plans for visual examination of lots of paper for properties not included in this section. These documents shall be made available to the contractors and manufacturers.

Speck: A unit of dirt; any foreign matter 0.02 mm² or larger embedded in the sheet and visible when the sheet is examined in a well lit room at a distance of 12 to 18 inches with the sheet resting at a 45° angle from the normal. *Note, it is not necessary to lift or rotate the sheet to see the speck.* See dirt.

Stiffness: For the Gurley test, use method T—543 and specimen size that is 64 mm long by 51 mm wide. For the Taber test, use method T—489.

Solid Waste Disposal Act: Amended RCRA establishing the definitions and categories of recovered material including postconsumer material

Stock (fiber analysis): Use method T—401. Standards with the following requirements: (a) Free from ground and unbleached woodpulp, or (b) 100% bleached chemical woodpulp, or (c) Remainder bleached chemical pulp – should be interpreted to mean the paper is free from lignin.

TCF: See chlorine-free.

Tearing strength (resistance): Use method T—414.

Tensile strength: Use method T—494. For wet tensile strength, heat the specimens at 105 °C for 15 minutes, then use method T—456.

Thickness: Use method T—411.

Unbleached: Paper or pulp not treated with bleaching agents.

Vegetable-fiber paper: Paper which contains a significant amount of “renewable” plant fibers, not wood or cotton fibers.

Watermark: A translucent design in the paper. It is pressed into the paper by a raised pattern using a dandy roll during the paper manufacturing process.

Water resistance: Use T—433 or T—441, as appropriate for the stock.

Writing quality: (a) When “pen and ink” is specified, the degree of feathering is determined by writing on the specimen using a 1% ink solution of either C.I. Acid Red 1 (C.I. 18050) or C.I. Acid Green 3 (C.I. 42085) using an extra fine pen nib such as Estabrook Falcon #048, Hunt #107, Hunt #512 or equivalent. (b) If “ball point and felt tip pens” are specified, test the surface for writing quality with any three commercially available brand name pens.

Part 3.

STANDARD SAMPLES

AND

DRAWINGS

SAMPLES AND COLOR INFORMATION

Physical Samples.

The Government standard samples referenced in this publication may be obtained by contacting GPO's customer service office. For vendors and for prospective bidders, contact the Contracting Officer. Standard samples serve as the Government's referee or physical samples for the different grades of paper specified in this publication but specifically provide a visual for properties such as finish and formation that are not quantified nor very easily described using metrics.

Samples of paper most commonly used in printing projects are available in a separate Paper Samples Book. This collection of samples shows a number of paper grades with different finishes and texture, weights and thickness, as well as the selection of Government established colors. These samples are used to assist with the design of a print project.

Specifying papers that meet these specification standards will ensure that the print project consist of papers that are the best value.

Color / Brightness.

Many specification standards offer flexibility in the selection of the color or brightness. To specify a unique color, there are a couple of ways to do this: (1) attach a color swatch to the requisition or (2) state the desired color by "*product name and color name or EQUAL.*" (Note: Product names and color should be verified periodically since paper companies frequently discontinue colors.)

When a specific color or brightness is not stated as a requirement, the color / brightness defaults to the requirements in the standard. Each standard ensures maximum competition for the paper grade.

There are a number of Government established colors with specific color coordinates as demonstrated on the right. Six of the established colors are common for the business paper grades: writing, manifold, bond, ledger, index and xerographic paper. (See Table 1.) Generally, these paper grades, unless purchased in a *mill run* quantity, are supplied as a *commercial* color match to the established standard of blue, buff, green, pink, salmon or yellow. Commercial color matches are not exact matches to the Government color but often suitable for the intended use.

The vellum-finish cover grade has an extensive set of established colors. A "good" color match to the Table 2 color standards is generally available through purchasing a *mill run* quantity which can be as small as 5,000 pounds up to 20,000 pounds depending on the color and manufacturer. GPO central office carries inventories of these colors.

A series of white and cream white color standards have also been established and inventoried for in-plant printing. (See Table 3.)

Color matches are measured instrumentally as well as assessed visually for their acceptability. If a tight color match is critical, specify a "*precision*" acceptance criteria requirement.

Table 1: Business paper color

Blue	L* = 81.5 a* = -10.4 b* = -5.0	Pink	L* = 71.8 a* = 35.5 b* = 2.1
Buff	L* = 88.5 a* = -2.11 b* = -25.7	Salmon	L* = 79.7 a* = 1.3 b* = 27.7
Green	L* = 78.6 a* = -16.2 b* = 5.4	Yellow	L* = 91.6 a* = -7.7 b* = 40.6

Table 2: Vellum-finish cover color

Brown	L* = 56.8 a* = -10.4 b* = -5.0	Saddle tan	L* = 46.1 a* = 7.3 b* = 18.9
Canary yellow	L* = 88.5 a* = 14.0 b* = 30.3	Sand gray	L* = 70.4 a* = 2.8 b* = 16.6
Dutch blue	L* = 56.1 a* = -3.6 b* = 16.3	Sun orange	L* = 67.8 a* = 39.5 b* = 49.4
Killarney green	L* = 61.4 a* = -18.2 b* = 17.8	Venice blue	L* = 77.4 a* = -17.0 b* = -12.9
Light gray	L* = 68.8 a* = 0.5 b* = 10.2	Vermillion	L* = 43.2 a* = 46.5 b* = 20.0
Peach tan	L* = 69.5 a* = 8.2 b* = 26.0	Victoria green	L* = 64.7 a* = -23.7 b* = 1.1
Pecan brown	L* = 63.5 a* = 6.7 b* = 22.6		

Table 3: Select White Color Standard

B (82 Brightness)	L* = 93.3 a* = 1.0 b* = -2.0	E (Cotton Papers)	L* = 94.0 a* = -0.5 b* = 4.0
C (72 Brightness)	L* = 92.0 a* = -0.5 b* = 7.5	F (80 Brightness)	L* = 93.5 a* = -0.1 b* = 3.0
D (E30)	L* = 93.5 a* = -0.5 b* = 1.5	Cream-White	L* = 92.4 a* = 10.9 b* = -19.2

DRAWINGS—Watermarks

Watermark

Two basic Government watermarks have been established. The Group I watermarks consist simply of the “eagle” and a “star” for each 25 percent of cotton/linen fiber specified for the paper.

The Group II watermarks have the word “recycled” in the design. The paper stock must have a postconsumer (PC) fiber content, whether it is a PC wood fiber or PC recovered (cotton/linen) fiber. Note, *recovered material (cotton/linen) is not a PC recovered fiber.*

Group I



*YEAR—9.5 mm (3/8") Figures

Style A: Watermark Design for 25% Bond and Ledger Papers

Group II



*YEAR—9.5 mm (3/8") Figures

Style D: Watermark Design for Recycled 25% Bond and Ledger Papers



*YEAR—9.5 mm (3/8") Figures

Style B: Watermark Design for 50% Bond and Ledger Papers



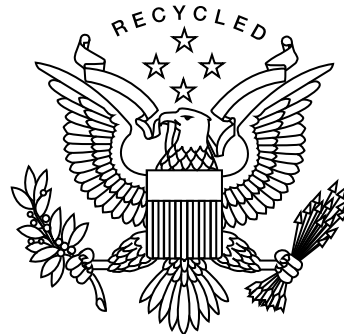
*YEAR—9.5 mm (3/8") Figures

Style E: Watermark Design for Recycled 50% Bond and Ledger Papers



*YEAR—9.5 mm (3/8") Figures

Style C: Watermark Design for 100% Writing, Bond, and Ledger Papers



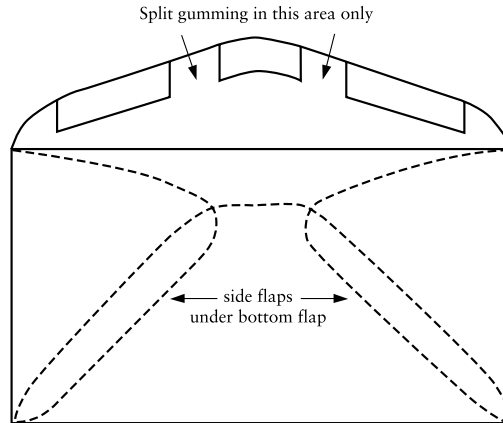
*YEAR—9.5 mm (3/8") Figures

Style F: Watermark Design for Recycled 100% Writing, Bond, and Ledger Papers

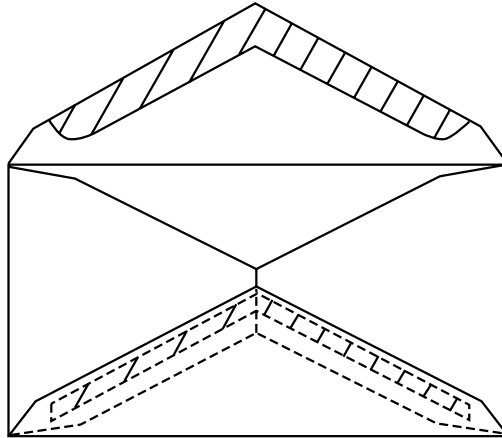
DRAWINGS—Envelopes

Envelopes

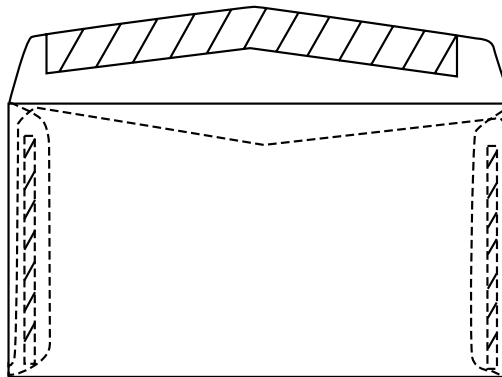
There are many construction styles for envelopes. The three most common styles of office envelopes used in Federal offices are shown below. Critical use information are included in each procurement contract. Generally these envelopes are suitable for insertion of correspondences either manually or by automated equipment; for letterpress and offset printing, processing in laser printers, and automated mailing sorting equipment. The printed matter may include text and line illustrations.



Style A: High cut diagonal seam open side envelopes.
The broken lines show style of cut on back of envelopes.



Style B: Web style diagonal seam envelopes.



Style C: Web style side seam envelopes.

Part 4.

STATUTORY AUTHORITY

AND

ACCEPTANCE CRITERIA

ACCEPTANCE CRITERIA

Introduction.

Attention is invited to the following sections of Title 44 U.S. Code relative to the procurement of paper for the United States Government.

Section 509—“Standards of paper; advertisements for proposals; samples.

The Joint Committee on Printing shall fix upon standards of paper for the different descriptions of public printing and binding and the Public Printer, under their direction, shall advertise in six newspapers or trade journals, published in different cities, for sealed proposals to furnish the Government with paper, as specified in the schedule to be furnished applicants by the Public Printer, setting forth in detail the quality and quantities required for the public printing. The Public Printer shall furnish samples of the standard of papers fixed upon to applicants who desire to bid. (Pub. L. 90-620, Oct. 22, 1968, 82 Stat. 1244.)

HISTORICAL AND REVISION NOTES

Based on 44 U.S. Code, 1974 ed., Section 5 (Jan. 12, 1895, ch. 23, Section 3, 28 Stat. 601; Mar. 3, 1925, ch. 421, section 1, 43 Stat. 1105).

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 515, 1121 of this title.”

Section 513—“Comparison of paper and envelopes with standard quality.

The Public Printer shall compare every lot of paper and envelopes delivered by a contractor with the standard of quality fixed upon by the Joint Committee on Printing and may not accept paper or envelopes which do not conform to it in every particular. A lot of delivered paper or envelopes which does not conform to the standard of quality may be accepted by the Committee at a discount that in its opinion is sufficient to protect the interests of the Government. (Pub. L. 90-620, Oct. 22, 1968, 82 Stat. 1245.)

HISTORICAL AND REVISION NOTES

Based on 44 U.S. Code, 1964 ed., Section 9 (Jan. 12, 1895, ch. 23, Section 7, 28 Stat. 602; June 20, 1936, ch. 630, title VIII, section 13, 49 Stat. 1553).

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 515, 1121 of this title.”

Section 514—“Determination of quality of paper.

The Joint Committee on Printing shall determine differences of opinion between the Public Printer and a contractor for paper respecting the paper’s quality and the decision of the Committee is final as to the United States. (Pub. L. 90-620, Oct. 22, 1968, 82 Stat. 1245.)

HISTORICAL AND REVISION NOTES

Based on 44 U.S. Code, 1964 ed., Section 10 (Jan. 12, 1895, ch. 23, Section 8, 28 Stat. 602; Mar. 3, 1917, ch. 163, section 6, 39 Stat. 1121).

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 515, 1121 of this title.”

Product Quality Index.

The following acceptance criteria shall be employed to evaluate the paper’s conformance to specification.

Paper that does not meet all specification values shall be accepted with no discount providing that the minimum acceptable *Product Quality Index (PQI)* has been met.

The PQI for a specific paper is determined by assigning demerits to each deficient quality characteristic based on test results. The demerits assigned will vary with the category of deficiency. A *minor defect* shall be assigned 4 demerits, a *major defect* 12 demerits and a *critical defect* 36 demerits.

Definitions.

Minor Defect. Any deviation from specified a value which does not materially reduce the usability of the paper for its intended purpose; or require special procedures for printing or processing. Major

Defect. Any deviation from specified values, other than critical, that could result in failure, or materially reduce the usability of the paper for its intended purpose; or may require special procedures for printing or processing, or is a significant deviation from specifications, established standards, or average process capability, or may materially affect the appearance of the product. Critical Defect. Any deviation from specified requirement that judgment and experience indicate would result in the paper being unusable for its intended purpose; or is a serious departure from specifications, established standards, or average process capability.

Product Quality Index (PQI) is equal to 100 minus the sum of the assessed demerits for each paper characteristic or property.

$i=N$

$$PQI = 100 - \sum_{i=1} C_i$$

$i=1$

where C= characteristic or property.

Paper having a PQI of 70 or greater shall be accepted at the contracted price as meeting the intent and requirement of the specification. That having a PQI below 70 shall be considered as critically defective, subject to outright rejection.

Criteria for establishing the category of defect and demerits are as follows unless otherwise stated in the specification standard.

1. Acidity (pH value)		
a. Precision requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 0.20 pH unit.....	Minor	4
0.20 to 0.40 pH unit.....	Major	12
More than 0.40 pH unit.....	Critical	36
b. Regular requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 0.40 pH unit.....	Minor	4
0.40 to 0.60 pH unit.....	Major	12
More than 0.60 pH unit.....	Critical	36
2. Basis weight		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Not as specified.....	Critical	36
3. Brightness		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 0.5 percentage point.....	Minor	4
0.5 to 1.0 percentage point.....	Major	12
More than 1 percentage point.....	Critical	36
OR		
More than 2 percentage points below the target value.		
4. Bursting strength		
a. Precision requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 5%.....	Minor	4
5% to 10%.....	Major	12
More than 10%.....	Critical	36
b. Regular requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 10%.....	Minor	4
10% to 25%.....	Major	12
More than 25%.....	Critical	36
5. Calcium carbonate – Same as 2.		
6. Cleanliness – Same as 2.		
7. Color deviation		
a. Precision requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 0.5 DE over specified.....	Minor	4
0.5 to 1.5 DE over specified.....	Major	12
More than 1.5 DE over specified.....	Critical	36
OR		
If standard states another DE value as begin critically defective.		

b. Regular requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 1.0 DE over specified.....	Minor	4
1.0 to 2.0 DE over specified.....	Major	12
More than 2.0 DE over specified.....	Critical	36
8. Color 2-sidedness – Same as 2.		
9. Color variation		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
More than 0.5 DE over specified.....	Critical	36
10. Equilibrium relative humidity		
a. Precision requirement		
<u>Deficiency</u>	<u>Category</u>	<u>Demerits</u>
Less than ± 1 percentage point.....	Minor	4
± 1 to ± 2 percentage points.....	Major	12
More than ± 2 percentage points.....	Critical	36
b. Regular requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than ± 3 percentage points.....	Minor	4
± 3 to ± 5 percentage points.....	Major	12
More than ± 5 percentage points.....	Critical	36
11. Folding endurance – Same as 4.		
12. Gloss – Same as 4.		
13. Oil holdout of coating – Same as 2.		
14. Oil penetration		
a. Precision requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 10%.....	Minor	4
10% to 25%.....	Major	12
More than 25%.....	Critical	36
b. Regular requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 25%.....	Minor	4
25% to 50%.....	Major	12
More than 50%.....	Critical	36
15. Opacity		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 1 percentage point.....	Minor	4
1 to 2 percentage points.....	Major	12
More than 2 percentage points.....	Critical	36
OR		
Individual specimen averaging more than 0.5 percentage point below the stated minimum value.		
16. Optical brighteners (fluorescence)		
a. Precision requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 0.5 percentage point.....	Minor	4
0.5 to 1 percentage point.....	Major	12
More than 1 percentage point.....	Critical	36

b. Regular requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 1 percentage point	Minor	4
1 to 2 percentage points	Major	12
More than 2 percentage points	Critical	36

17. Pick resistance		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 1 No. below specified	Minor	4
1 to 2 No. below specified	Major	12
More than 2 No. below specified	Critical	36

OR
Individual specimen averaging more than 1 No. below the stated minimum value.

18. Porosity – Same as 4.

19. Rosin – Same as 4.

20. Smoothness – Same as 4.

21. Stiffness – Same as 4.

22. Stock – specified fiber content or presence of unbleached or ground woodpulp

<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 3 percentage points from specified	Minor	4
3 to 5 percentage points from specified	Major	12
More than 5 percentage point from specified	Critical	36

OR
Lignin more than 1 percentage point from specified.

23. Tearing strength – Same as 4.

24. Tensile strength – Same as 4.

25. Thickness

a. Precision requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 2%.....	Minor	4
2% to 4%	Major	12
More than 4%	Critical	36

b. Regular requirement		
<u>Deviation from requirement</u>	<u>Category</u>	<u>Demerits</u>
Less than 4%	Minor	4
4% to 8%	Major	12
More than 8%	Critical	36

26. Thickness variation edge to edge – Same as 4 (regular requirement)

27. Water resistance – Same as 14.

28. All other measurable characteristic and properties, e.g. density, light transmission, reflectance drop, etc. – Same as 2.

29. Subjective or judgment characteristics and properties, e.g. erasing and writing qualities, watermark quality, finish, formation, etc.

<u>Assessment</u>	<u>Category</u>	<u>Demerits</u>
Fair or rating 2.....	Minor	4
Marginal or rating 3.....	Major	12
Unacceptable or rating 4	Critical	36

Examples: Assigning Category and Demerits and Determining the Product Quality Index (PQI) of the Paper Stock.

Below the calculation of Demerits is demonstrated for selected properties.

a.	Acidity	Requirement is not less than 6.5	Result is 6.3
	<u>Calculation</u>	$6.5 - 6.3 = 0.2$	
	If	Precision requirement	Major Category and 12 Demerits
	If	Regular requirement	Minor Category and 4 Demerits

b.	Brightness	Requirement is 72	
		+ 2	Result is 69.2
	<u>Calculation</u>	$70 - 69.2 = 0.8$	Major Category and 12 Demerits

c.	Bursting Strength	Requirement is not less than 70	Result is 60
	<u>Calculation</u>	$70 - 60 = 10;$ $10/70 \times 100\% = 14.4\%$	
	If	Precision requirement	Critical Category and 36 Demerits
	If	Regular requirement	Major Category and 12 Demerits

d.	Stock	Not more than 1% groundwood	Result is 3%
	<u>Calculation</u>	$3 - 1 = 2$	Minor Category and 4 Demerits

e.	Density	Requirement is 1.4	Result is 1.65
	<u>Calculation</u>	to 1.6	
		$1.65 - 1.6 = 0.05$	Refer to Item 28
		Use #2 – Not as specified	Critical Category and 36 Demerits

f.	Formation	Requirement is “uniform”	Result is “fair” and “rating 2”
			Assessment is Minor Category and 4 Demerits

g.	Color Deviation	Match provided Sample with DE not greater than 0.25	Result is DE = 0.4
	<u>Calculation</u>	0.4 is greater than the specified 0.25	Critical Category and 36 Demerits

EXAMPLE 1

This paper has demerits assessed for the following properties:

<i>ID</i>	<i>Property</i>	<i>Category</i>	<i>Demerits</i>
a.	Acidity (regular)	Minor	4
f.	Formation	Minor	4
g.	Color deviation (precision)	Critical	36

To calculate the **Product Quality Index** for the paper, add up all the demerits and subtract from 100

$$\begin{aligned} \text{PQI} &= 100 - (4 + 4 + 36) \\ &\text{OR } 100 - 44 \\ &= 56 \text{ or } \mathbf{NOT\ EQUAL} \end{aligned}$$

EXAMPLE 2

This paper has demerits assessed for the following properties:

<i>ID</i>	<i>Property</i>	<i>Category</i>	<i>Demerits</i>
b.	Brightness	Major	12
c.	Bursting strength (regular)	Major	12
d.	Stock	Minor	4

To calculate the **Product Quality Index** for the paper, add up all the demerits and subtract from 100.

$$\begin{aligned} \text{PQI} &= 100 - (12 + 12 + 4) \\ &\text{OR } 100 - 28 \\ &= 72 \text{ or } \mathbf{EQUAL} \end{aligned}$$