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Paper grade classifications

Scope

The purpose of this Technical Information Paper (TIP) is to identify several commonly used categories for classifying paper grades and to list specific grades which would normally be included in each category.

Significance

Several TAPPI TIPs and numerous technical publications make reference to general categories of paper and board grades. These grade categories are often either undefined or inconsistently defined. The intent of this TIP is to provide general descriptions which can be used consistently in technical publications, production summaries, and data retrieval systems to combine and categorize paper grade data.

Safety precautions

There are no special safety precautions associated with the information in this TIP.

Background

A particular grade of paper is typically identified in one or more of the following three ways:

- Final use of the paper
- Furnish used in making the paper
- Type of machinery used in making the paper

For example, “off-machine coated groundwood publication paper” indicates the use of the paper (publications), the major furnish component (groundwood), and an indication of the manufacturing process (coated off-machine).

The categories outlined in this TIP for identifying paper grades are based primarily on the use and furnish of the paper. There are 10 such categories (excluding “others”).

Selection of the categories is somewhat arbitrary and category definitions are not rigid. These grade categories are, however, commonly used and represent over 95% of all paper tonnage produced. In general, those grades which can be produced on a given paper machine will be found in the same category.

Category definitions

The 10 major paper grade categories are defined below. Included with each definition is a listing of several specific and common grades which are included in that category.

There are several grades that could be placed in different categories. For example, No. 4 coated paper may be in either the “coated groundwood” category or in the “coated wood-free” category, depending on the furnish used in its production.

The table given at the end of this TIP lists over 600 specific grades and end uses. These grades are listed in alphabetical order with an “x” indicating the corresponding major category or categories. This listing of grade(s) was taken in part from the *2012 Lockwood-Post Directory of Pulp & Paper Mills – Global Edition (1)*, *The Dictionary of Paper (2)*, and the *US Department of Commerce (3)* with the associated classifications used as a basic guide.

1. *Uncoated wood containing paper*: Paper in this category is uncoated and are produced mainly from mechanical pulps. About 80% of the uncoated groundwood paper is newsprint. Grammage range is 24-75 g/m² with newsprint being in the range of 38 g/m² to 52 g/m². Also included are directory, computer paper, catalog, and advertising supplements (rotogravure).

2. *Coated wood containing paper*: Paper in this category generally has *at least* 10% mechanical pulp (typically 50-55% groundwood) with the balance consisting of chemical pulp. This category includes mostly No. 5 enamel paper with some No. 4, both of which are coated on both sides. Typical finished sheet grammage ranges from 45 g/m² to 130 g/m². Other grades in this category are letterpress, offset, lightweight coated (LWC), and magazine.

3. *Uncoated wood-free paper*: Paper in this category has *less than* 10% mechanical pulp (normally 0%) and is not coated. Typical uses include office papers (forms, copy, bond, tablet, and envelope), carbonless, and printing papers (offset, cover, text). Other names for this category are printing, writing, and book papers.

4. *Coated wood-free paper*: Paper in this category also has less than 10% mechanical pulp, but the paper is coated on one or both sides. Grades include No. 1-3 enamel, and about half of the No. 4. Typical end uses are magazines, books, and commercial printing. Grammage range is 70 g/m² to 170 g/m² for the finished sheet.

5. *Packaging paper*: Paper in this category has four main end uses: wrapping, bag/sack, shipping sack, and other converting, such as saturating and cable. Grammage ranges from 50 g/m² to 134 g/m². The furnish may be either bleached or unbleached. Also included in this category are papers with a machine glazed (MG) finish produced by a large-diameter drying cylinder. Grades include wax base, wrapping, carbonizing, and kraft specialties.

6. *Bleached paperboard*: Paperboard in this category uses bleached sulfate furnish. The primary use is folding carton and milk carton stock. About half of the tonnage is coated. Grammage varies from 200 g/m² to 500 g/m². Also included are cups, plates, printing boards, tag stock, computer cards, file folders, and index cards.

7. *Unbleached paperboard*: Paperboard in this category is unbleached and made from virgin kraft or neutral sulfite semichemical pulp. The major grade is linerboard, used in the production of corrugated containers. Typical weight range is 130 g/m² to 450 g/m². Also included in this category is corrugating medium which is made with a low percentage of recycled fiber.

8. *Recycled paperboard*: Paperboard in this category uses recovered fiber. Grades include corrugating medium, folding boxboard (clay coated), setup boxboard (uncoated), and paperboard. Also included are gypsum liner (backing and facing), core tube stock, and roofing felt.

9. *Tissue*: Typical furnish for these grades in this category is bleached chemical pulp with 50% or more mechanical pulp. The majority of tissue paper is used for sanitary products (tissue, towel, bathroom, napkins, etc.). Grammage range is 13 g/m² to 75 g/m². These grades are manufactured on through air dried (TAD) or Yankee machines with either a wet or dry crepe operation.

10. *Market pulp*: Pulp is sub-divided into grades based on wood species, pulping process, and bleaching. It is sold in sheets, bales, and rolls.

11. *Others*: This category is used for grades that do not fit conveniently into any of the above categories. Less than 5% of worldwide paper tonnage is in this “other” category. Examples are hardboard, asbestos board, thin papers (cigarette tissue, condenser, bible), and dense papers (glassine, grease proof, release, and vegetable parchment).

The definitions of the 10 paper categories outlined above represent usage that was common in 2012. The listing of grades represents those in use in 2012. These listings will be updated as paper products and markets change.

Request for comments

The classification of paper grades provided by this TIP are updated on a periodic basis to reflect changes in grade usage and furnish. Comments, suggestions, and advice from knowledgeable people working in the paper industry would be helpful in preparing these updates. Please send any suggestions for additions, deletions, or modifications of the grade listing to the Technical Divisions Administrator at TAPPI.

Literature cited

1. *2012 Lockwood-Post Directory of Pulp & Paper Mills – Global Edition*, Paperloop RISI, 2012.
2. *The Dictionary of Paper*, 5th Ed., American Pulp and Paper Association, New York, 1997.
3. *Statistical Classification of Domestic and Foreign Commodities Exported from the United States*, 2012 Ed. Schedule B, Volume I, Chapters 47-48. U.S. Department of Commerce, 2013.

Additional information

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Keywords

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Paper grade (end-use)	Wood-containing Uncoated	Wood-containing Coated	Woodfree Uncoated	Woodfree Coated	Kraft Paper Bleached / Unbleached	Paperboard Bleached	Paperboard Unbleached	Paperboard Recycled	Tissue	Market Pulp	Others
x Major use											
o Minor use											
Abrasive paper backing			x		o						
Abrasive papers			x		o						
Abrasive papers			o		x						
Absorbent									x		
Acetate pulp										x	
Acid free paper			x						o		
Acid proof paper					x						
Acoustical board							x	o			
Account book paper			x								
Adding machine paper and rolls			x								
Adhesive paper					x						
Advertising supplements	x	x	o	o							
Air mail			x								
Air-dried writing			x								
Album paper			x								
Albumin paper				x							
Alkali proof paper			x								
Alkaline papers (book)			x								
Alpha paper (book)			x								
Alpha (dissolving) pulp										x	
Aluminum paper (silver label paper)											x
Antique (antique finish, antique			x								
Anti-rust paper											x
Anti-tarnish			x								
Archival paper			x								
Art paper			x	x							
Artificial parchment paper					x						o
Asbestos											x
Asbestos board											x
Aseptic (extended shelf life)			x			o					
Asphalt								x			
Atlas			o	x							
Auto Chrome paper				x							
Automobile board							x	x			
Backing					o	o	o	o			
Back liner								x			
Backlining paper			x								



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x Major use											
o Minor use											
Bag lining					x						
Bag paper					x						
Bagasse pulp										x	
Bakelite paper (hard paper)											x
Bakers wrap					x				o		
Bamboo pulp										x	
Bands (shirt/package)							x				
Bank deposit			x								
Bank note			x								
Bank parchment			x								
Barograph paper				x							
Barrier paper											x
Baryta											x
Base board	x		x			o	o				
Base paper	x		x								
Bath tissue									x		
Bathroom tissue									x		
Battery separator											x
Beverage carrier board							x				
Bible											x
Billboard			x								
Binders board								x			
Bisulfate pulp										x	
Bitokoski	x										
Blank book paper	o		x			x	x	x			
Blanks						x	x				
Bleached coated board						x					
Bleached coated food					x						
Bleached coated label						x					
Bleached coated packaging						x					
Bleached coated paper					x						
Bleached foodboard						x					
Bleached kraft board						x					
Bleached kraft paper					x						
Bleached kraft specialties					x						o
Bleached paperboard						x					
Bleached pulp										x	
Blotting board	x		x								x
Blotting paper			x								

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x Major use											
o Minor use											
Blue print			x								
Board						x	x	x			
Body stock	o	o	o	o	x						
Bogus								x			
Bond			x								
Book / offset	o		x								
Book binding board								x			
Book end-leaf			x								
Book paper, coated		o		x							
Book paper, uncoated	o		x								
Bottle cap						x	x				
Bottle label				x							
Bottle wrap			x	x							
Box cover			x								
Box, solid fiber								x			
Box board - set up (rigid), folding						o	x	x			
Box liner paper					x						
Braille paper			x								
Bread wrap											x
Brief paper			x								
Bristol						x					
Brocade paper			x								
Brown print			x								
Building paper/board					x		x	x			
Bulking book	o		o								
Bulking board					x	x	o				
Business communications paper			x								
Business form		o	x	o							
Business paper			x	o							
Butchers wrap	o			o	x						
Butter carton						x					
C1S (coated one side)		x		x							
C2S (coated both sides)		x		x							
C.B. (carbonless front) paper		o		x							
C.F. (carbonless back) paper		o		x							
C.F.B. (carbonless front and back)		o		x							
Cable					x						
Calendar paper				x							
Calender roll			x								

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x Major use											
o Minor use											
Campaign						o		o			
Can liner						x					
Can stock						x	o	x			
Candy cup											x
Capacitor											x
Car and case lining							o	x			
Canvas board						x					
Carbolic paper											x
Carbon									o		x
Carbon paper			x								
Carbonizing	x				x						
Carbonizing machine glazed (MG)					x						
Carbonless		o		x							
Carbonless copy				x							
Card			x	o							
Cardboard								x			
Carrier board							x		o		
Cartonboard								x			
Cartridge											
Cartridge					x						
Cash register rolls			x								
Cast coated freesheet				x							
Cast coated woodfree				x							
Cast paper											x
Catalog	x	x	o	o							
Catalog book	x	x	o	o							
Cellulose wadding							x		o		
CFS (coated freesheet)				x							
CGW (coated groundwood)		x									
Chart			x								
Check			x								o
Chemical pulp										x	
Chemical cellulose (dissolving pulp)										x	
Chemi-mechanical pulp										x	
Chemi-thermomechanical pulp										x	
Chip board						x					
Cigarette/tipping									o		x
Circular			x								
Clay coated boxboard						x	x	o			