



Paper

AB

## Paper ABC

There are about 3,000 different sorts of paper. This Paper ABC describes the most important types of paper and gives an overview of the raw materials and the production techniques used in making them.



### Area-related weight/Grammage weight (Flächenbezogene Masse/Flächengewicht)

Area-related weight is the term used to denote paper, cardboard and paperboard weight. It is measured by grams per square meter. Paper products of up to 200 grams per square meter ( $\text{g/m}^2$ ) are regarded as paper, those between 200 and 600 grams as cardboard and those above as paperboard.

### Art paper (Kunstdruckpapier)

High quality and relatively heavy paper that is coated on both sides and has a smooth surface. High-resolution single or multi-coloured images require paper that is smooth and evenly absorbs the printing ink. For this reason the irregular fibre structure of the base paper  
→ *Natural paper (Naturpapier)* is covered with a coating  
→ *Coated paper (Gestrichenes Papier)*.

### Auto panel board (Karosseriepappe)

Voluminous, bituminous board made of recovered paper. It is used as interior lining and padding material for motor vehicles, as acoustic insulation, for covering and as fibreboard for various building uses.



### Banknote paper (Banknotenpapier)

Long-lasting, durable and age-resistant paper, suitable for multicoloured printing. Equipped with watermark and other anti-counterfeiting agents, such as metal threads. In Germany, banknote paper is predominantly manufactured from cotton fibre (a bi-product of cotton processing, 2–4 mm in length) and linen rag.

### Bank paper (Bankpostpapier, Hartpostpapier)

Bank or bond paper is high quality wood-free writing paper, with even transparency and often tagged with

a water mark. Adding rag to the pulp makes the best quality paper.

#### **Bible paper (Bibeldruckpapier)**

Woodfree special printing paper, sometimes with rag content and mostly containing filler with low area-related mass. Bible paper must have very good mechanical and age resistant qualities.

#### **Blotting paper (Löschpapier)**

Voluminous, highly absorbable paper that has high filler content. It is mostly made of pure cotton in the form of bleached linters and pulp. Plain varieties, such as notebook inlays, contain mechanical pulp. Good wetness and absorption qualities are obtained by a rough grinding of the raw materials. White blotting paper often has an additive of dyed fibre.

#### **Book end paper (Vorsatzpapier)**

Paper that is white or dyed to various colours, ribbed or embossed and that is pasted into the front or back inner-cover of a book. This automatically masks the folded edges of the material that covers the book.

#### **Book paper (Werkdruckpapier)**

Paper for the manufacture of books and is either woodfree or wood-containing. Depending on its volume, i. e. the ratio of thickness to its mass, the paper may contain more or less filler. Sometimes the volume is important: as it dictates whether the paper is sealed. The descriptive terms are 1,5x, 1,75x, 2,0x, 2,2x, 2,5x volume. Spruce, Eucalyptus, Esparto (a coarse grass type) and sulphate pulp is used for its production.

#### **Book printing paper (Buchdruckpapier)**

Either woodfree or wood-containing. It tends to be voluminous, thick and has a high area-related mass.



#### **Carbonless filling paper (Kabelpapier)**

→ *Electric insulating paper (Elektroisolerpapier)*

#### **Carbonless copy paper (Selbstdurchschreibepapier)**

Carbonless copy paper (NCR) or auto-copying paper

enables copying without the use of a carbon copy paper sheet in between the original and the copy. The paper is prepared in such a way that when pressure is applied, a colour reaction or ink transfer takes place. NCR Paper is mainly used as continuous feed forms, wage and salary invoices, receipts and as pre-printed forms for monetary transactions.

#### **Cardboard (Karton)**

One layer card is simply thick paper. For the manufacture of multi-layered types of card (these often comprise of layers made of different raw materials), a number of sheets of wet paper web are pressed together so that they stick together without adhesive. With multi-layered → *Folding cardboard (Faltschachtelkarton)*, the front side may be coated or uncoated. In addition there is also multi-layered cardboard where the layers are pasted to each other with adhesive (pasted cardboard). In terms of area-related mass (150–600 g/m<sup>2</sup>), then cardboard spans the area of paper and cardboard. In addition to folding boxes, it is also used for high quality packaging, fancy boxes, book covers, displays, paper cups as well as for milk and fruit juice cartons.

#### **Cast coated paper (Gussgestrichene Papiere)**

Coated paper that gets its shine by moulding the wet or wetted surface on a dry highly polished chromed cylinder, as opposed to simply glazing it.

#### **Chemical pulp (Zellstoff)**

Fibre matter that is chemically separated from vegetable raw materials whereby the non-fibrous components are substantially removed. Depending on the method used, sulphite or sulphate pulp is produced. Apart from recovered paper, these make up the most important ingredients of paper manufacturing.

#### **Chromo cardboard (Chromokarton)**

Multi-layered with a coated top layer comprising of chemical pulp or recovered paper. Chromo paper is used for folded boxes, shoeboxes, decoration or book and brochure binders.

#### **Chromo imitation cardboard (Chromoersatzkarton)**

Multi-layered board that is covered on either one or both sides with a woodfree layer and is smooth on one

side. Sandwiched between these 2 layers are interleaving layers of mechanical or recovered paper pulp. At least one of the layers comprises of bleached pulp.

#### **Chromo paper (Chromopapier)**

→ *Label paper (Etikettenpapier)*

#### **Cigarette paper (Zigarettenpapier)**

Light un-sized paper (18-24 g/m<sup>2</sup>) made of linen and hemp fibre that is today, however, increasingly being replaced by special pulp varieties. The paper is specially equipped in order to increase its ability to burn. It has a filler quota of 30 %.

#### **Coated paper (Gestrichenes Papier)**

By coating the paper evenly, a smooth and sealed surface is achieved. This is very well suited for reproducing high quality resolution images. The coating solution is applied in coating machines. Multiple pre-coating takes place in the paper machine. The market differentiates between wood-containing and woodfree quality in single and double-sided coated types → *Label paper (Etikettenpapier)*, → *Rotogravure paper (Tiefdruckpapier)*, → *Illustration printing paper (Bilderdruckpapier)*, → *Art paper (Kunstdruckpapier)*, → *Offset paper (Offsetpapier)*.

#### **Coloured paper (Buntpapier)**

Collective term for paper that is coloured, printed, super-calendered, or patterned (e. g. marbled) on one side.

#### **Condenser paper (Kondensationspapier)**

→ *Electric insulating paper (Elektroisolierpapier)*

#### **Copying paper (Kopierpapier)**

Uncoated paper that comes in woodfree or wood-containing varieties. It can be white or multicoloured and has the format of DIN A4 and DIN A3.

#### **Corrosion preventive paper (Korrosionsschutzpapier)**

→ *Packaging paper (Packpapier)* impregnated or coated with anti-corrosive agents that either prevent or impede rusting of iron and silver ware. The effect of the so called "vapour phase inhibitor" (VPI) paper, is based on the gaseous compounds that are emitted.

These block oxidation reactions on the surface of the metal.

#### **Corrugated paper (Wellenpapier)**

Collective term for corrugated paper that is produced as corrugated web and used primarily for → *Corrugated paperboard (Wellpappe)*.

#### **Corrugated paperboard (Wellpappe)**

Corrugated paperboard is a paper-processing product. It was invented in 1871 in the USA. Due to its excellent packaging qualities, the new material established itself quickly. It is manufactured by passing the paper web between two crimped or corrugated rollers, which by means of heat and pressure, press the wave effect into the paper. The crimped paper is then pasted on one or both sides with a layer of smooth paper. In Germany corrugated paper is predominantly manufactured out of Recycled paper → *Testliner (Testliner)*, → *Corrugated paper (Wellenpapier)*.

#### **Crêpe Paper (Krepp-Papier)**

Also known as crinkle paper. The paper web is shortened when crêped. This raises the level of stretch ability in the machine direction and the paper then becomes more pliant and resistant to mechanical impact. The pleats or crinkles in wet crêped paper are created on a cylinder with the use of a crêpe scraper that crushes the wet paper web. The paper is then removed and dried. Crêpe paper is used for decorative packaging (crêpe tissue paper, garden crêpe paper) and for filtering purposes (coffee filters). It can also be used for masking during painting and glazing as well as for hygiene purposes → *Crêpe sanitary paper (Krepp-Hygienepapier)*.

#### **Crêpe sanitary paper (Krepp-Hygienepapier)**

One layered paper, wood-containing and/or manufactured from recovered fibre. As opposed to → *Tissue sanitary paper*, it is crinkled in its wet state. The crinkle factor is about 20%. This way the fibre compound can be reshaped without losing its strength. The drying process that follows fixes the crinkling. It is commonly used as toilet paper and for paper towels.



### **Decor paper (Dekorpapier)**

Woodfree paper which is processed in a series of steps. Before it is impregnated with artificial resin, it is often printed with various decorations (e. g. a wood grain pattern). The final products are laminated boards and chipboards that are in turn used for manufacturing furniture and interior fittings.

### **Document paper (Dokumentenpapier)**

Paper with a high resistance to ageing. It is woodfree with rag additives or solely made from rag. It is used for written documents that have to be stored over a long period.

### **Drawing paper (Zeichenpapier)**

The range of drawing paper comprises of woodfree and wood-containing varieties whose characteristics are specially adapted to the requirements of drawing and painting techniques. Drawing paper is sized in its composition as well as on the surface. It is only slightly translucent (opaque) and more often it is washable.

### **Duplex board (Duplexkarton)**

Duplex board consists of two layers of material made from recovered paper.



### **Electric insulating paper (Elektroisolierpapier)**

Strong pore-free paper that is impregnated with synthetic resin and made from pulp. It is sometimes produced with rag additive. Electric insulating paper must not contain filler or electrical conductive contamination (metal, carbon etc), salts or acids. The pore-free state is achieved by grinding the pulp finely. Electric insulating paper that possesses a high strength is produced for the use of so called 'cable filling paper' that is spirally wrapped around conductor wire. 'Electrolyte paper' is an example of an electric insulating paper that possesses high absorbency and purity factors. The wafer-thin condenser paper must be uniformly thick and pore-free. It is one of the most expensive papers.

### **Envelope paper (Briefumschlagpapier)**

Envelope paper is produced in many variations for envelopes. These may include woodfree or wood-containing, smooth or super-calendered on one side, white or coloured. It is imperative however that the paper is non-transparent, capable of being written and printed on and crease resistant.



### **Filtration paper (Filtrierpapier)**

Made of soft pulp or occasionally with unsized waterproof paper that has rag additive. Filtration speed and release capability (separation factor) are both dependant on the amount and size of the pores. They are additionally influenced by various degrees of pulp refining and by crêping.

### **Fine paper (Feinpapier)**

Quality description for a large amount of high quality, woodfree paper that has rag additive or is sometimes completely manufactured from rag. The highest demands are placed on fine paper in regard to its even transparency, surface properties and light resistance.

### **Fine paperboard (Feinpappe)**

Fine paperboard (hard board) is characterized by a high resistance to bending and tearing and surface hardness. It is used for the manufacture of hand paperboard and wrapping paper and is made up of higher quality recovered paper, pulp, textile bi-products and occasionally ground wood pulp. It has either no or a minimum amount of filler. In order to increase its strength and water resistance, synthetic emulsions are added. Very often the board is post-treated by glazing, lacquering and embossing. Bookbinding board, fireboard, jacquard board, gasket board, trunk board, shoe board, pressboard and punching board are among the various fine boards.

### **Flame resistant paper (Flammfestes Papier)**

Flame resistant paper may ignite but must extinguish immediately and then carbonize. This is achieved by impregnating the paper with substances which produce a protective gas that displaces the air when the paper is heated. Other chemicals such as soluble glass (sodium silicate) increase the ignition temperature.

### Folding cardboard (Faltschachtelkarton)

Single or multi-layered board made of primary or secondary fibre, sometimes coated on one side and capable of being channelled and scored. It must have the required stiffness needed for packing.



### Glassine (Pergamin)

Greaseproof paper made out of finely ground pulp. Its high transparency factor is obtained by strong glazing (polishing between rollers). As it is used as chocolate wrapping paper, it must be able to be embossed. Additionally, it is used for interwoven pages in photo albums, wrapping paper, fish tin cans, protective covers for books, envelope windows etc.

### Glossy paper (Glanzpapier)

→ Coloured paper (*Buntpapier*), → Illustration printing paper (*Bilderdruckpapier*), → Cast coated paper (*Gussgestrichene Papiere*)

### Graphic paper (Grafische Papiere)

Printing and writing paper that includes → *Fine paper (Feinpapier)*. After the raw material a difference is made between wood-containing and woodfree paper. Amongst the former are Newsprint paper and Roto-gravure paper which, from a quantity point of view, are the most important.

### Greaseproof paper (Fettdichtes Papier)

The level of grease resistance is achieved either by grinding the pulp extremely finely over a long period of time and pore-free sheet formation on the paper machine → *Imitation parchment (Pergamentersatzpapier)*, → *Glassine (Pergamin)* or by parchmientisation of the pulp → *Vegetable parchment (Echt Pergament)*. In addition, the level of grease resistance is increased with various auxiliary additives.

### Grey cardboard (Graukarton)

Cardboard made from Recovered paper that is rough or smooth on just one side. Also lined on one or both sides. Grey cardboard is used for pre-cut forms like cardboard boxes and as bases for note pads, drawing pads and calendars.

### Grey paperboard (Graupappe)

Manufactured from Recovered paper. It has the same uses as for bookbinding board, deep drawn board, boxes and other containers as well as for general packing material.

### Ground wood pulp (Holzschliff)

Mechanical or ground wood pulp is produced mechanically by grinding (on a grinding stone). It consists of de-barked coniferous wood and water. Depending on the technique used, white, brown or chemical treated wood pulp is produced. In addition to the pulp fibre, the wood components lignin and resin remain in the fibre mass. It is due to the lignin that mechanical pulp turns yellow so quickly. It is therefore only used for short-lived paper products.



### Handmade paper (Büttenpapiere, Handgeschöpftes Papier)

Up until the paper machine was invented in the 19th century, paper was made by hand – it was manually scooped out of the vat, sheet for sheet. Today that process is only used in the production of a few special types of paper. For this manual process of paper production, the mould (i. e. a frame covered with a taught stretched sieve) is dipped into a fibre suspension. When it is lifted out, it is shaken lightly in order to distribute the fibres evenly. At the same time the water seeps through the mesh of the sieve, back into the vat. The removable folded frame (“lid”) prevents the suspension from dripping down the side. The wet sheets that have been deposited between felt layers, are then stacked into the press, drained of water and dried. Handmade paper always has a typical frayed edge that is formed on the inside of the deckle frame (sieve). Today, paper that is called “handmade paper” is normally mechanically scooped with a cylinder sieve.

Depending on the structure of the sieve used, the paper can either have a ribbed or a smooth (vellum) transparent appearance. Most hand scooped papers show a “watermark” when held against the light. In order to create the watermark, wire is bent and fastened to the sieve. Due to the fact that less fibres collect in a thinner layer on the wire construction than

they do on the rest of the sieve, the watermark gives the impression of being more translucent than the rest of the sheet. Watermarks can also be created by indenting the sieve (as in bank note paper).



#### **Illustration printing paper (Bilderdruckpapier)**

Woodfree or wood-containing paper → *Wood-containing paper (Holzhaltiges Papier)*, double sided → *Coated paper (Gestrichenes Papier)*. Standard illustration printing paper normally possesses glossy, matt and granulated surfaces. It is used for multi-coloured printing for periodicals with smaller circulations e.g. trade journals and magazines, manuals and reference books, schoolbooks, advertising brochures as well as company reports and brochures.

#### **Imitation parchment paper (Pergamentersatzpapier)**

Woodfree paper that is produced by grinding finely and for a long time certain types of pulp with additives. Imitation parchment is very similar to vegetable parchment in terms of its appearance and qualities (especially its greaseproof qualities). However it differs in that it is neither water nor boil proof. It is used for wrapping paper for meat and sausage and fluted paper for cookies and biscuits.

#### **Impregnated paper (Imprägniertes Papier)**

Water resistant paper with sealing, anti-corrosion or heavy anti-inflammable qualities. This is achieved by dipping the paper in an impregnating solution.



#### **raftliner (Kraftliner)**

Kraftliner is paper with a basis weight of 120 g/m<sup>2</sup>, upwards. It consists mainly of bleached or unbleached sulphate pulp and is used for the top layer of corrugated paperboard.

#### **Kraft paper (Kraftpapier)**

Packaging paper made from bleached or unbleached softwood sulphate pulp (kraft pulp) or equivalent fibre with mechanical solidity and pliancy. Kraft paper is suitable for the production of paper bags because it can withstand the varying demands placed upon filled

bags. Crêped kraft paper is characterized by its stretchability. The term „kraft tissue paper“ is used for thin, multi-ribbed kraft paper that is smooth on one side and is under 30 g/m<sup>2</sup>. It is used for wrapping silver cutlery, metal objects and above all glass. Depending on its intended use, kraft paper may be coated with bitumen or synthetic substances in subsequent manufacturing processes.

#### **Kitchen paper towels (Küchentücher)**

Made from crêped paper that has been manufactured using pulp or recovered paper. They are used in the home and as wiping towels in industry.



#### **Label paper (Etikettenpapiere)**

A paper that is mostly coated on one side and suitable for offset and multicoloured gravure. The paper is generally capable of being varnished, bronzed and punched. Sometimes also resistant to moisture and alcohol in order to ensure that the labels are removable e.g. during the bottle wash process in breweries. Depending on coating methods and recipe, a differentiation can be made between machine-coated and chromo paper as well as glossy and cast-coated paper.

#### **LWC paper (LWC Papier)**

LWC (light weight coated) paper is coated on both sides and contains mechanical pulp. It comes on reels and has a basis weight of less than 72 g/m<sup>2</sup>. It is used for magazines, mail order catalogues etc. Rotogravure or web offset printing is used. → Coated paper (Gestrichenes Papier)



#### **Machine coated paper (Maschinengestrichenes Papier)**

→ *Illustration printing paper (Bilderdruckpapier)*, → *Label paper (Etikettenpapiere)*

#### **Machine-made cardboard (Maschinenkarton)**

Group of types of board mainly used for the manufacture of cardboard boxes.

### **Machine-made paperboard (Maschinenpappe)**

Manufactured from recovered paper as a continuous web on a cardboard machine. In contrast, → *Winding paper (Wickelpappe)* is manufactured on special machines.

### **Magazine paper (Illustrationsdruckpapier, Magazinpapier, Zeitschriftenpapier)**

The choice of paper that is suitable for the use as magazine paper depends on the number of copies printed and quality requirements (reproduction of images, outer appearance, impact of advertising). Magazines in mass circulation are normally printed on the rotary printing machine. The printing paper in reels especially → *LWC (LWC Papier)* used for this is either coated or uncoated. Magazines with a lower circulation are mainly printed on the sheet-fed offset press machine or sheet-fed book press machine. For this a diverse amount of woodfree and wood-containing types of paper are used. Magazine paper is uncoated and mostly wood-containing paper with filler that is suitable for high-resolution image reproductions. The necessary surface smoothness is achieved by strong glazing → *Super-calendered paper (Satinirtes Papier)*.

### **Marble paper (Marmorpapier)**

Effect paper in various colours that has a irregularly dyed and patterned surface. Coloured paper of this type is used as → *Bookend paper (Vorsatzpapier)*.

### **Mechanical pulp (Holzstoff)**

Generic term used for pulp that is completely or almost completely produced by mechanical means.

### **Metal paper (Metallpapier)**

Refined paper covered on one or both sides with a thin film of metal foil.

### **Millboard (Vollpappe)**

Collective term for all solid paperboard.

### **Moisture and liquor resistant paper (Nassfestes und Laugenfestes Papier)**

By adding alkali water resistant agents to the fibre suspension, a paper is created that will still remain strong even when wet.



### **Natural paper (Naturpapier)**

→ *Uncoated paper (Ungestrichenes Papier)*

### **NCR paper (NCR Papier, Selbstdurchschreibepapier)**

NCR standing for 'non carbon required' paper. → Carbonless copy paper (Selbstdurchschreibepapier).

### **Newsprint (Zeitungsdrukpapier)**

A strong and wood-containing rotary printing paper that has been machine finished or super-calendered (40 – 56 g/m<sup>2</sup>). The raw material used for this is predominantly recovered paper. Due to the fact that its use as a carrier of information is short lived, the demands placed on the paper regarding its visual quality and printability are lower than those placed on other paper (e.g. coated paper). Generally, it is assumed that only low-resolution images can be printed. The impact of light and oxygen cause the paper to yellow. The newsprint must possess qualities that allow it to run through the machine well. Today's modern printing techniques require paper with high tear resistance so that the flow of the rapid production machines is not interrupted. Newsprint is used for daily, weekly and advertising newspapers. It is mainly processed in offset printing and increasingly for coloured editions.



### **Offset paper (Offsetpapier)**

Collective term for printing paper that has properties that make it particularly suitable for offset printing. The paper should not give off dust when being processed and should be dimensionally stable. Offset paper that is woodfree or wood-containing can be coated (glossy, matt, embossed) or uncoated. It is processed from reels or sheets.

### **Oiled paper (Ölpapier)**

Term used for paper that has been impregnated with wax or paraffin → *Wax paper (Wachspapier)*. In the past, the base paper was soaked in dry oils such as linseed or poppy seed oil. Oiled paper is water proof and water resistant.





### **ackaging paper (Packpapier)**

Collective term for paper of various pulp compositions and qualities. The only characteristic they may have in common is in their use. The variety and composition of the pulp depends

on the demands required of the paper. Most importantly it should be tear, burst, crease and scrub resistant in addition to possessing elasticity and strength. Very often the paper needs to possess good printing qualities (packaging as an advertising medium). For special purposes the paper may also need to be made waterproof and water resistant, aroma or steam proof. For this, either special additives are added to the pulp, or the paper is coated or impregnated with synthetic materials and/or combined with metal foils. Thin packaging paper weighing less than 30 g/m<sup>2</sup> is called wrapping tissue paper → *Tracing paper (Seidenpapier)*.

### **Paper (Papier)**

A product made out of mechanically or chemically produced plant fibre, which is meshed together in a watery suspension. Together with additives, fillers, dye or glue it is then formed into sheets.

### **Paper mâché (Papiermâché, Pappmâché)**

Kneadable handicraft pulp created by rubbing paper into water. Glue or adhesive paste is often added in order to obtain cohesiveness. Formed by hand and often used as a basis for moulds and for producing plastic (3D) objects that harden when dry.

### **Paper in sheets (Formatpapier)**

Formatted paper mostly used for graphical purposes, for example in printing offices. Contrary to paper in reels, it is already cut to ordered size. For this, the paper web is cut lengthwise and again in the traverse direction. The sheets are then packed in the required quantity.

### **Paperboard (Pappe)**

The most important difference between paperboard and → *Cardboard (Karton)* is that paperboard has a higher area-related mass. Being thicker it automatically has higher physical properties. Because it is unecological and technically more difficult to produce a

sufficiently thick layer in one operation process, several layers of wet thin paperboard are pressed together. Cylinder paper machines are used to produce wet machine paperboard (millboard). For this, the fibre mat is wound onto the rolling barrel until the desired thickness has been achieved. The paperboard cylinder is then cut up into sheets. Formerly, this was done manually (handmade paperboard). Machine-made paperboard is normally made up of layers, each with a different composition. The upper layer however, consists of a higher-grade composition. Machine made paperboard is manufactured by pressing together several fibre mats that have been produced on cylinder or Fourdrinier paper machines. The term then allocated to the product often depends on the raw material used: wood paperboard (manufactured from mechanical pulp); grey paperboard (manufactured from recovered paper). Sometimes it is named according to its use: box paperboard, → *Roofing board (Dachpappe)*, grey bookbinding paperboard, auto panel board and decoration board. The term millboard (solid fibre board) is used to differentiate between sturdy paperboard and → *Corrugated paperboard (Wellpappe)*. This is i. e. multi-layered paperboard consisting of various layers of smooth and corrugated paper.

### **Parchment paper (Pergamentpapier)**

→ *Vegetable parchment (Echt Pergament)*

### **Photographic paper (Fotopapier)**

Base paper used for photographic paper that must be moisture resistant, dimensionally stable and obtained from chemically neutral pulp that is free of impurities (such as traces of iron or copper). Such impurities would bring about an undesired separation of the metallic silver. These days, paper with a thin double-sided coating of polyethylene has replaced barite paper. The coating prevents the chemicals and water from soaking into the base paper when the photos are developed. This also means that the rinse and dry phases are shortened.

### **Postcard cardboard (Postkartenkarton)**

Either wood-containing or woodfree and supercalendered. The prescribed minimum basis weight is 170 g/m<sup>2</sup>.

Official post office postcards have a basis weight of 190 g/m<sup>2</sup>.

#### **Poster paper (Plakatpapier)**

Contains a high amount of filler and is often coloured. It is also weather enduring. The poster formats are based on a 1/1 sheet that is equivalent to DIN A1.

#### **Primary fibre (Primärfasern)**

Also known as fresh fibre. It is the basic raw material for the paper industry. Cellulose and mechanical pulp are manufactured from the renewable primary product: wood. The fibre derived from wood is known as primary fibre or fresh fibre.

#### **Printing paper (Druckpapier)**

Term that embraces all wood-containing and woodfree printable paper that serve as a medium for printed information. In addition to swift and even colour absorption and drying (printability), dimensional stability, sufficient opacity (reverse printing may not show through) and smoothness, it is essential that the paper is strong and stiff so that it can pass rapidly and efficiently through the machine and not cause any malfunctioning (pressroom runnability). A large amount of printing paper is coated → *Coated paper (Gestrichenes Papier)* in order to improve the printability. Depending on the coating method and amount of coating, the uneven surface structure of the base paper can be rendered smooth. Lightweight printing paper (which is wood-containing and super-calendered for printing paper) is less than 45 g/m<sup>2</sup> and used for telephone and address books, → *LWC (LWC Papier)* and → *Bible printing paper (Bibeldruckpapier)*.



#### **rag paper (Hadernpapier)**

Pure rag paper is manufactured solely from rag (previously linen scraps, these days cotton bi-products from the textile industry). Today, however, mainly plant fibre comprising of cellulose (such as cotton, linen, hemp and ramie) is used for manufacturing rag paper. The paper makers consider rag as the finest raw material. Paper manufactured in this way is often stronger and more ageresistant than all other paper types made from bleached pulp. Rag

paper, as well as paper with rag content and pulp additives, is used for bank notes, certificates, documents, financial record books, maps and copper etchings. It is also used for expensive writing and watercolour paper and additionally, for special technical processes.

#### **Recovered paper (Altpapier)**

In terms of quantity, recovered paper is the most important raw material in the paper industry. The major recipients are the producers of newsprint, packaging paper and sanitary paper. Due to the fact that the fibres are shortened during every procedure, the life cycle of recovered paper fibre is limited. A constant supply of virgin fibre is therefore one of the basic prerequisites needed to maintain the recycling loop.

#### **Recovered paper grades (Altpapierqualitäten)**

The recovered paper market differentiates between 40 quality grades. They are graded by their various fibre quality.

#### **Recovered paper material (Altpapierstoff)**

Fibre pulp gained from recovered paper and is used for producing paper, cardboard and paperboard.

#### **Recovered paper recycling rate (Altpapier-Rücklaufquote)**

Ratio of recovered paper recovery compared to paper, paperboard and cardboard consumption.

#### **Recovered paper usage rate (Altpapier-Einsatzquote)**

Proportion of recovered paper used for production of paper, cardboard and paperboard.

#### **Recovered paper yield (Altpapieraufkommen)**

Amount of recovered paper that is nationally available for paper production.

#### **Recycled paper (Recyclingpapier)**

Term for paper made of 100% recovered paper. It is used for graphical paper, boxes and sanitary paper.

#### **Roofing board (Dachpappe)**

Paperboard that has been dipped in tar, bitumen and/or asphalt. Roofing board is manufactured by soaking the so called "naked roofing board" in the dip mixture

and then covering it with sand. As opposed to other paper products, roofing board is the only paper product that contains reprocessed wool.

#### **Rotogravure paper (Tiefdruckpapier)**

Mostly wood-containing, strongly super-calendered (smoothed) paper with a high percentage of ash that is manufactured → *Coated or uncoated paper (Ge-strichenes oder ungestrichenes Papier)*. The paper must ensure that the ink is absorbed evenly at high printing speeds. In order to absorb the ink evenly from the ink cells of the rotogravure rollers, it is essential that the paper has a certain amount of softness and suppleness. It is used for magazines, mail order and travel catalogues, prospectuses and newspaper or magazine supplements with a high circulation.



#### **C paper (SC Papier)**

SC stands for super-calendered.

This is a super-calendered uncoated wood-containing paper that contains filler additive → *Magazine paper (Magazinpapier)*

#### **Sack paper (Sackpapier)**

→ *Kraft paper (Kraftpapier)*

#### **Sanitary paper (Hygienepapiere)**

Group of sanitary paper consists of cellulose wadding, tissue and crêpe paper that is manufactured from recovered paper and/or pulp with the addition of mechanical pulp. Due to high levels of everyday use, the term "tissue paper" has been adopted as a collective term for sanitary paper internationally. It is used for producing toilet paper and numerous other hygiene products such as paper handkerchiefs, kitchen paper towels, paper towels and cosmetic towels.

#### **Secondary fibre (Sekundärfasern)**

Obtained from recovered paper and used for manufacturing paper, card and paperboard → *Recovered paper (Altpapier)*, → *Recovered paper material (Altpapierstoff)*

#### **Security paper (Wertzeichenpapier, Sicherheitspapiere)**

High quality woodfree paper, sometimes containing rag and equipped with multi-levelled watermark in

order to prevent forgery. Paper that is secure against misuse and counterfeit. The partially chemical security measures used during the paper manufacture are kept confidential.

#### **Shoe paperboard (Schuhpappe)**

Shoe paperboard is strong and flexible hardboard made of recovered paper and is free of mechanical pulp and filler. It is used as insoles, hoods and joints for shoe ware.

#### **Silicone paper (Silikonpapier)**

Used to prevent glue as well as adhesive pastes and substances from sticking. By coating the paper with silicone an adhesive paper with a surface that is repellent against most substances is created. It is primarily used for self-adhesive papers and foils e.g. for the manufacture of labels.

#### **Sized paper (Geleimtes Papier)**

The ability of paper to absorb fluids is reduced by sizing, thereby creating the precondition for writing properties needed for ink. Sized paper is used for many other purposes (printing, coating, sticking) whereby the sizing fulfils many tasks. It regulates the water intake and increases the water and ink endurance capabilities (picking resistance).

#### **Soft paperboard (Weichpappen)**

Soft, voluminous paperboard that possesses felt-like characteristics. Used as masking board, packaging board or stencils.

#### **Special paper (Spezialpapiere)**

Group of special paper covers all the types of paper that have special properties as characteristic features. In order to attain these properties, special raw materials are often necessary.

#### **Suitcase paperboard (Kofferpappe)**

Sized, dense, elastic, flexible and strong fine paperboard. The surface is normally treated in order to make it water repellent. The board can be pressed, folded, bent, riveted and sewn.

### **Super-calendered paper (Satinirtes Papier)**

Paper that is smoothed and compressed between calendar rollers and thereby achieving a shine that can be highly glossed or matt. Used as e.g. → *Magazine paper (Zeitschriftenpapier, Magazinpapier)*. The glazing effect obtained in the calendar roller machines is based on friction, temperature and pressure.

### **Surface sized paper (Oberflächengeleimtes Papier)**

Page surface sized paper that is generally obtained with the help of a size press within the paper machine.

### **Synthetic fibre paper (Synthesefaserpapiere)**

Paper that is manufactured with synthetic fibre such as Polyester and Polyamide, spun Rayon and partially with the addition of fillers. The fibres cohere by means of a binding agent. The hardy and heavy-duty synthetic fibre paper is used for the production of maps and important documents (such as driver's licences and vehicle registration documents).



### **Tea bag paper (Teebeutelpapier)**

According to the type of processing, there is a distinction between heat-sealing and non-heat-sealing tea bag paper. The paper is made of e.g. Abaca-(Manila) pulp with the addition of high alpha pulp. It must be highly porous, water resistant, tasteless and have an area mass of preferably 12 to 15 g/m<sup>2</sup>.

### **Testliner (Testliner)**

Strong paper or paperboard with undetermined pulp composition and is primarily made of recovered paper. It is often formed to duplex paper (2-layered). The area mass is less than 125 g/m<sup>2</sup>.

### **Thermo paper (Thermopapiere)**

Thermo active paper is coated on one side. It is used for printing text and graphics in thermo-plotters (e.g. for technical drawings) and thermo-printers (e.g. labels, tickets, cash register slips and other receipts).

### **Thin print paper (Dünndruckpapier)**

Thin printing paper or → *Bible paper (Bibeldruckpapier)*, was used for the first time over 100 years ago

for printing bibles. It is paper with a low basis weight made from rag and bleached kraft pulp. It is used in advertising printing (catalogues, prospectuses, mailings etc.) and job printing (periodicals, brochures, instruction leaflets and forms etc.).

### **Tissue Sanitary paper (Tissue-Hygienepapier)**

Tissue is a sanitary paper made from pulp or recovered paper pulp, sometimes using mechanical pulp additive. It has a closed structure and is crêped slightly. It is so thin that it is hardly ever used in single layer form. Depending on the requirements, the amount of layers are increased. Crêping takes place with a dry content of over 90%. The high level of softness is achieved by dry crêping and a low basis weight. It is normally used as a two or more layered article. This pliant and highly absorbent product is predominantly made of chemical pulp and/or deinked recovered paper – partly with the addition of mechanical pulp. Depending on its use it may be made moisture proof. It is used for face tissues, paper handkerchiefs, serviettes, kitchen towel rolls, paper towels and toilet paper.

### **Toilet paper (Toilettenpapier)**

→ *Tissue sanitary paper (Tissue-Hygienepapiere)*,  
→ *Crêpe sanitary paper (Krepp-Hygienepapiere)*

### **Tracing paper (Seidenpapier)**

Collective term for thin paper with a basis weight of less than 30 g/m<sup>2</sup>, which may vary according to its use and composition. It is mainly used for packing sensitive and delicate objects, such as bottles and fruit (especially for oranges), wrapping tissue paper and, in a waterproof form, for wrapping flowers. In addition it is used as base paper for manufacturing carbon paper, as lining paper in envelopes and, together with aluminium foil, in cigarette packaging. The extremely fine Japanese silk paper is produced with a basis weight of 6 to 8 g/m<sup>2</sup>.

### **Transparent paper (Transparentpapier)**

By grinding high quality fibre (hard chemical pulp types, rag) gently over a long period of time, a raw material is obtained and used to manufacture transparent paper. The transparent drawing paper is rendered writing-friendlier, fingerprint resistant, erasure

proof and dimensionally stable by sizing the surface. Transparent paper can be subsequently impregnated or "parchmentized" → *Vegetable parchment (Echt Pergament)*

### **Triplex cardboard (Triplekarton)**

Cardboard, smooth on one side and comprising of the following three layers: top surface layer made of chemical pulp and/or wastepaper; an interfacing middle layer made of wastepaper; and a bottom layer made of mechanical and/or chemical pulp and/or recovered paper.



### **vegetable parchment (Echt Pergament)**

Also known as parchment paper, vegetable parchment is a packaging material of high purity with grease-proof qualities. It is particularly strong in both dry and wet states. Manufactured from bleached pulp it is sometimes combined

with aluminium foil and used for packaging butter, margarine and other fats as well as cheese and other products in the foodstuff industry. Technical vegetable parchment is coated with silicone and is used in various industries as layer-separating or secondary paper.



### **all base paper (Tapetenrohpaper)**

Collective term for paper that is suitable for the production of wallpaper. This paper can be single or multi-layered (Simplex/Duplex), woodfree or wood-containing, coated or uncoated and may also be laminated and pre-glued.

### **Water colour paper (Aquarellpapier)**

Woodfree → *Woodfree paper (Holzfreies Papier)*, drawing paper with either rag content or manufactured solely from rag. It has a rough or structured surface. The paper should take well to watercolours but the colours should not bleed through the paper. The paper needs to be erasure proof.

### **Watermark paper (Wasserzeichenpapier)**

→ *Bank paper (Bankpostpapier, Hartpostpapier)*,  
→ *Handmade paper (Handgeschöpftes Papier)*,

### **Wax paper (Wachspapier)**

Mostly woodfree paper impregnated with paraffin, wax or a wax/paraffin/synthetic mixture. Depending on the temperature applied for the impregnation and cooling processes, the paper can either just have a surface coating or be completely saturated by the impregnating solution. The former is water repellent (water can permeate the paper to a certain degree) whereas the latter only has a small amount of wax on the surface and is watertight. Depending on the impregnating solution and method, the product can be manufactured according to its field of application: e.g. packaging for bread and sweets and razor blades.

### **Winding paper (Wickelpappe)**

This is millboard and is manufactured by winding one or more wet pulp webs onto a formatting roller.

### **Wood cardboard (Holzkarton)**

A cardboard with light or grey lining layers manufactured mainly from mechanical pulp.

### **Wood-containing paper (Holzhaltiges Papier)**

Wood-containing paper contains more than 5% mechanical wood fibre. In addition to unbleached pulp, it mostly contains mechanical pulp → *Primary fibre (Primärfasern)* and/or recovered paper pulp → *Secondary fibre (Sekundärfasern)*. The proportion of pulp, mechanical pulp and recovered paper pulp is varied according to use. Due to the fact that under the influence of light and oxygen, paper with a high wood content, such as newsprint, turns yellow quicker than woodfree paper, it is therefore mostly used for short-lived products. The wood content favourably influences the opacity of the paper. This reduces print from shining through when printing both sides of the paper.

### **Woodfree paper (Holzfreies Papier)**

Paper made of chemical pulp fibre. It can contain up to 5% mechanical pulp fibre.

### **Writing paper (Schreibpapier)**

Uncoated paper that is suitable for writing with ink

on both sides. The written characters may not run or seep through. Writing paper, which is always sized and suitable for printing, may either be wood-containing or woodfree. Filler additives make the paper less transparent. In order to impede the nib from gliding over the paper, the paper surface is often super-calendered (smoothed). Woodfree writing paper is especially diverse in its usage: formula paper for PC printers and copying paper, document reader paper, woodfree writing paper → *Fine paper (Feinpapier)*



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