



PRODUCT INFORMATION BROCHURE

LABORATORY FILTER PAPERS



A wholly Australian owned and operated enterprise, Filtech Specialised Products offer superior quality filter paper - sourced internationally from leading manufacturers and converted in our own specialised clean-room facility.

Our experience in the field of laboratory filtration, together with independent laboratory testing facilities, combine to provide you with reliable back-up through an independent distributor network.

ANALYTICAL PAPERS

Filtech Specialised Products offer a complete range of high quality analytical filter papers designed for use in general laboratory applications. Our range includes qualitative, quantitative (ashless and hardened ashless) and glass microfibre filter paper. This extensive selection of superior quality papers allows you to select the grade with the proper combinations of particle retention, flow rate and wet strength that will best suit your specific application.

Product samples are readily available upon request to assist you in determining the most suitable Filtech grade for your application. Please do not hesitate to discuss your specific application with us.

QUICK GRADE SELECTION CHART

Filtration Speed	Slow	Medium	Fast	Very Fast
Qualitative	1830	1839	1845	1851
		1803	1893	
		1926		
Qualitative (w/strengthened)	2850	2727	2886	4152 2883
Quantitative (ashless)	282	222	162	
Quantitative (hardened ashless)	285	225	165	
Glass Fibre	consult specifications			



QUALITATIVE FILTER PAPERS

Filtech qualitative grades of filter paper are recommended for use in analytical methods which determine or identify particulate constituents of a mixture irrespective of the amount present. The standard grades are suitable for quadrant folded or gravity flow applications. These filter papers contain a high level of alpha cellulose which provides high purity but will weaken when wet.

● Technical Specifications

Some of our Qualitative Grades

	1830	1926	1803	711	714	1827	1839	1893	665	1845	4332	1851
Weight (g/m ²)	95	95	88	183	183	99	70	88	291	70	71	123
Thickness (mm)	0.18	0.2	0.18	0.41	0.35	0.23	0.17	0.23	0.83	0.25	0.27	0.51
Flow Rate - (ml/min)	4	30	55	60	30	70	60	200	180	235		360
- Herzberg (sec/100ml)	1724	229	124	114	229	98	114	34	38	29		19
Wet Burst (mm H ₂ O)	760	535	330	1115	1525	405	380	760	560	445		405
Capillary Rise (mm/min)	13	18	24	27	24	26	25	38	52	36		48
Retention (µm)	1.5	2	2.5	3	3	4	6	10	18	25		35
Loading Capacity	Med.	Med.	Med.	V.High	V.High	Med.	Med.	High	V.High	High	High	V. High
Surface	S	S	S	S	S	S	S	S	S	C	C	C

Applications using filter paper in a system under pressure or vacuum require the use of high wet strength grades. These grades contain a small amount of chemically stable, insoluble binding resin which strengthens the natural fibre to fibre bonds under wet conditions. Grades containing wood fibre or resins are not recommended for use in quantitative ashing techniques or in Kjeldahl estimations.

High Wet Strength Grades

	2850	2727	2886	4152	2883
Weight (g/m ²)	88	70	70	154	123
Thickness (mm)	0.2	0.17	0.25	0.58	0.43
Flow Rate - (ml/min)	14	65	245	450	360
- Herzberg (sec/100ml)	491	105	28	15	19
Wet Burst (mm H ₂ O)	3050	3050	3175	2794	1780
Capillary Rise (mm/min)	13	21	36	N/D	51
Retention (µm)	2	3	27	31	40
Loading Capacity	Med.	Med.	High	V. High	V High
Surface	S	S	C	C	C

NOTE: Specifications given are typical values that fall within a defined range.

For this reason observed values may vary slightly.

S = Smooth C = Creped

Grade Characteristics

1830 - Slow flow rate for fine retention. High purity (100% cotton). For water analysis, biological products, fine precipitates, used in Buchner funnels.

1926 - Medium flow rate, very good retention. High capacity. High purity (100% cotton). High absorption. Used in agricultural labs for soil testing, air analysis, filtration of organic and sulphide precipitations. Finer retention than grade 1803 but with a slightly lower filtration speed.

1803 - Medium flow rate and retention. High purity (100% cotton) general purpose filter paper. For air pollution testing, aluminium phosphate, barium carbonate, lead chromate, beryllium hydroxide. Covers a wide range of laboratory applications including paper chromatography.

711 - Medium flow rate, good retention. High capacity, low loading. High purity (100% cotton). Use in Buchner funnels, dye filtration. Twice as thick as grade 1926 but with similar retention. An excellent sample carrier.

714 - Medium flowrate. Similar retention to grade 711, but slightly higher flow rate and thinner material. A good sample carrier. Recommended for general chromatographic applications. Widely used blotting paper.

1827 - This paper has extremely low iron and nitrogen content for protein analysis.

1839 - Medium flow rate and retention. Strong general purpose filter, useful in Buchner funnels, for barium carbonate, lead chromate, beryllium hydroxide. Commonly used in student labs.

1893 - Fast filtering, coarse surface. For air monitoring, gas filtration, ferric and magnesium hydroxides, insolubles. Also used for routine cleaner analysis of insoluble liquids such as biological fluids and organic elements.

665 - Medium thick paper. Excellent sample carrier with very high flow. Excellent blotter material.

1845 - Fast filtering, creped surface. For aluminium, ferric and magnesium hydroxides, insolubles, iron ore. This grade is intermediate between grade 1851 and grade 1893.

4332 - An economical version of 1845, this grade is an excellent paper for use in the sugar industry in terms of both performance and cost.

1851 - Very fast filtering, general purpose filter for coarse and gelatinous materials, oils, resin solutions. Larger particle retention than grade 1893.

High Wet Strength Grades

2850 - Slow flow rate, very good retention. For gas filtration, superphosphates, fine precipitates and boiler water analysis.

2727 - Medium flow rate with very good retention. A tighter version of grade 2886, this grade has rough surface and is often used in the food industry for routine tests.

2886 - Fast flow rate. A thinner version of grade 2883. Recommended for the filtration gelatinous precipitates. Creped surface also offers higher surface area to maintain high filtration speed. Very similar to grade 1845 but with very high wet strength.

4152 - Used in many industrial applications and mining labs. Very economical grade, fast flow rate, good retention and strength. Creped surface. Very thick material.

2883 - Fast flow rate, extremely high loading capacity. Recommended for the filtration of coarse and gelatinous precipitates. Creped finish also increases surface area.

● pleated (folded) papers

Filtech pre-pleated grades can save valuable time and maximise the efficiency of your filter system. Pleating increases the effective surface area by increasing flow rate and loading capacity and thus decreasing filtration time. Pleated circles are available from 125mm to 320mm in diameter.

● phase separating papers

Silicone impregnated filter paper to aid in the separation of aqueous solutions from organic solutions which are not soluble in water.



QUANTITATIVE (ASHLESS) FILTER PAPERS

Filtech quantitative filter papers are produced from extremely **high purity, acid washed paper** designed for use in analytical applications and gravimetric analyses.

These quantitative grades are manufactured from 100% high quality cotton fibres using **ultra-pure**, reverse osmosis water. A final acid treatment removes any remaining organic or inorganic impurities. Quantitative grades have an ash content of 0.007%, and in the hardened form 0.006%.

Specially treated high purity, **hardened** ashless papers are available for applications requiring increased wet strength and handling capacity. These hardened grades have a tough, smooth surface free of loose fibres that is ideal for collecting wet precipitates and are generally used because of their **high chemical resistance to acid and alkali**.

Quantitative Grades	Ashless			Hardened Ashless		
	282	222	162	285	225	165
Weight (g/m ²)	95	95	88	81	86	82
Thickness (mm)	0.18	0.20	0.23	0.17	0.20	0.19
Flow Rate - (ml/min)	4	30	200	14	40	235
- Herzberg (sec/100ml)	1724	229	34	491	171	29
Wet Burst (mm H ₂ O)	550	550	550	2500	2500	2300
Capillary Rise (mm/min)	13	18	38	16	22	33
Retention (µm)	1.5	2	10	1.5	2	15
Loading Capacity	Med.	Med.	Med.	Med.	Med.	Med.
Composition						
% Cotton Fibre	100	100	100	100	100	100
Ash Content (%)	0.007	0.007	0.007	0.006	0.006	0.006

NOTE: Specifications given are typical values that fall within a defined range. For this reason observed values may vary slightly.

Grade Characteristics

Hardened

282 - Fine retention for very fine particles, barium and lead sulphates, stannic and nickel sulphates, calcium oxalate, calcium fluoride.

222 - Medium flow rate, good retention for filtering trace elements, silver chromate, lead sulphate, zinc and ammonium hydroxides. This grade covers a wide range of general ashless applications. Also used in general soil analysis for separating solid from aqueous extracts.

162 - Fast filtering, for rapid filtration of coarse particles and gelatinous precipitates such as iron, zirconium and aluminium hydroxides and cobalt sulphides. Also used in air pollution testing to determine gaseous compounds. Recommended for fast analysis procedures for unstable precipitates such as silicon, which require speedy filtration.

Hardened Ashless

285 - Extremely fine retention for very fine particles such as barium and lead sulphates, stannic and nickel sulphide, calcium oxalate, calcium fluoride.

225 - Medium flow rate, good retention for filtering trace elements, silver chromate, lead sulphate, zinc and ammonium hydroxides. Most commonly used grade for applications requiring high chemical resistance to strong acid and alkali.

165 - A fast filtering grade for gravimetric analysis of coarse particles and gelatinous precipitates (ie aluminium and zirconium hydroxides) in acid and alkali solutions. Also used in air and food stuffs analysis and for chloride and phosphorous in cement, coal and coke.

ORDERING INFORMATION

● standard sizes

These range from 25mm to 500mm in diameter.

● catalogue numbers

Catalogue numbers designate both the grade and size of the filter paper, eg. 0162-125 denotes Grade 162, 125mm diameter.

0222-090 denotes Grade 222, 90mm diameter.

Please specify catalogue numbers when ordering.

● product samples

Samples are readily available for trial purposes. If you are not entirely satisfied with the performance of the first sample choice, please provide us with technical feedback. This will enable us to re-evaluate the most appropriate material from our wide range based on your specific feedback.

SPECIAL REQUIREMENTS

● custom sizes & shapes

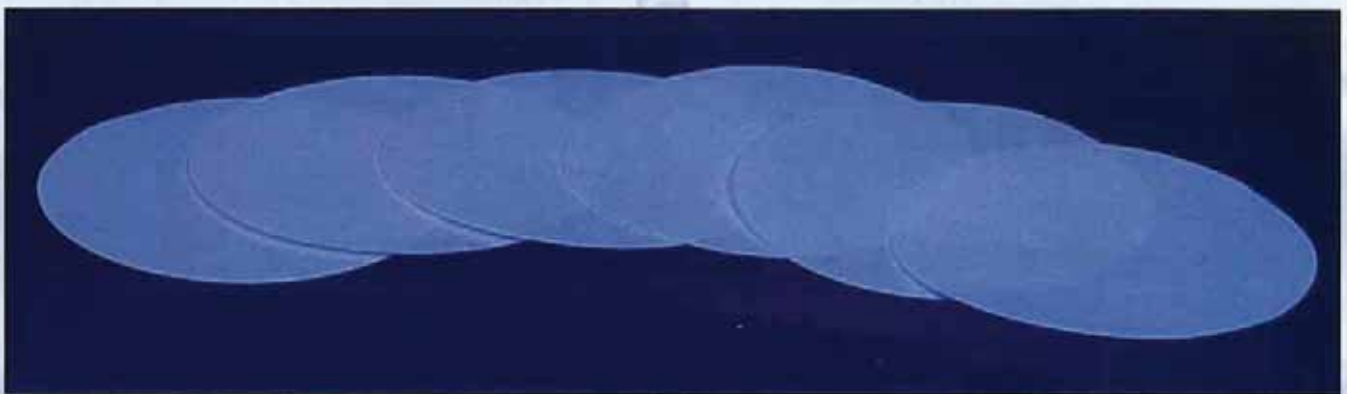
In addition to standard circle sizes, the Filtech quantitative filter paper range is available in **custom sizes** and **shapes** to suit specialised applications. With our **clean-room conversion** operation we are well able to cater to such requirements and we welcome your enquiry.

● custom labelling

Are you or your laboratory technicians confused by different manufacturers grade numbering systems? Once a suitable Filtech grade has been identified for your application, we can custom label to the description of your choice **at no additional cost**. This leaves no room for doubt as to which grade for which application.

● custom pack sizes

If you are a bulk user and would prefer to receive your filter papers in **larger pack sizes** we are able to accommodate your needs. Please enquire.



GLASS MICROFIBRE FILTER PAPER

DEPTH FILTRATION AND SURFACE FILTRATION

Glass microfibre filter paper, as in the case of conventional filter paper, is a depth type filter. This means that filtration takes place both on the surface and within the fibre matrix. Adhesion also occurs between particles as they accumulate on the filter, playing a role in the separation. In contrast to depth filtration is the concept of surface filtration, as in the case of a membrane filter, which acts as a single layer screen or sieve. Although very precise, membrane filters reach loading capacity (ie become clogged) rapidly. Glass microfibre filter papers thus act as excellent membrane prefilters.

GLASS MICROFIBRE FILTER PAPER

The unique characteristics of glass microfibre make it of particular advantage in specialised applications. In particular the following properties are notable:

- **rapid flow rate** - Movement of liquid laterally along the fibres and vertically through the filter, combined with a lack of porosity and swelling of individual fibres, provide maximum flow efficiency - far greater than that of conventional filter paper.

SPECIAL REQUIREMENTS

● custom sizes & shapes

In addition to standard circle sizes, the Filtech glass fibre range is available in custom sizes and shapes to suit specialised applications, as well as in bulk packs as a cost saving for high volume users.

- **fine particle retention** - By combining different fibre diameters in the manufacturing process, varying pore sizes and distributions can be attained.

- **high loading capacity** - Unlike cellulose filters whose fibrous matrices clog rapidly when filtering high particulate solutions, glass fibre filter papers will filter a much greater volume before reaching loading capacity.

- **chemical & thermal resistance** - Glass fibre filter papers maintain their operational integrity in the presence of acids, alkalis, most organic solvents and, in the case of binderless glass fibre, to **temperatures of 500°C**.

- **long shelf life** - Glass fibre filter papers do not absorb moisture and will not harden or yellow. Under normal conditions these filters can be stored indefinitely. **Glass fibre filters should not be folded or sharply creased as the fibres will break.**

Filtech offers a full range of glass fibre filter paper manufactured from 100% pure borosilicate glass. Grades include: 100% Binder Free Glass Fibre, Glass Fibre with added Binder and Specialty Laminates.

● specialised labelling

Are you or your laboratory technicians confused by different manufacturers' brands? Once a suitable paper has been identified for your application, Filtech can custom label indicating your particular application. This means no more uncertainties as to which grade for which purpose.



GLASS FIBRE FILTER PAPER

100% binder-free

These grades contain no binders or other additives that may cause interference in sensitive enzymatic or other chemical reactions. Filtech 100% Binder-free Glass Fibre Filter Papers are ideal for use in diagnostic applications requiring sample filtration, wicking of fluids and the absorption of reagents or reaction products. Other applications include: liquid scintillation counting, radioimmunoassay, water and wastewater analysis, TCLP, gravimetric analysis involving ignition of the sample and filtration of hot gases and liquids, environmental and air pollution monitoring and as a membrane pre-filter which will greatly increase the life of the membrane. Grades **393** and **483** are recommended for **TSS (Total Suspended Solids)** and **TDS (Total Dissolved Solids)** testing in water analysis. Grade **486** is recommended for applications where **low zinc** levels are required. Grade **486** is also recommended in **environmental air monitoring** applications and is available as **pre-numbered** and **individually inspected** on a light table, saving valuable time for the analyst. For **membrane pre-filtration** our **serial filter** comprising layers of glass microfibre filters of reducing particle retentions is highly recommended as it is economical and saves valuable time. This is also available with a 0.45µm membrane as a final filter.

• Technical Specifications

Glass Fibre Filter Paper 100% binder-free

	453	579*	393	363	483	486*	333	423
Weight (g/m ²)	88	84	53	144	68	67	56	123
Thickness (mm)	0.44	0.44	0.25	0.66	0.32	0.33	0.28	0.66
Flow Rate - (ml/min)	20	25	75	45	100	120	120	235
- Herzberg (sec/100ml)	343	274	91	152	68	57	57	29
Wet Burst (mm H ₂ O)	380	445	220	460	229	279	200	230
Retention (µm)	0.7	0.9	1.0	1.0	1.1	1.1	1.2	3.1
Loading Capacity	V.High	V.High	V.High.	V.High	V.High	V.High	V.High	V.High

* Low metals grades

NOTE: Specifications given are typical values that fall within a defined range. For this reason observed values may vary slightly.

Grade Characteristics

453 - Excellent retention. Recommended for filtering **fine** precipitated proteins, nucleic acids and difficult biochemical solutions. Used in combination with grade 423 as a highly retentive and protective pre-filter to extend the through-put of membrane filters. Recommended for **TCLP testing**.

579 - A **low metals** grade with good particle retention.

393 - Highly recommended and widely used for **dissolved and suspended solids determination** in water as well as many other general applications.

363 - Finer retention than grade 333 with higher wet strength and loading capacity. Recommended for clarification of liquid suspensions loaded with fine particulates. Also used in **membrane pre-filtration**.

483 - Also used for **dissolved and suspended solids determination** in water as well as many other general applications.

486 - Very similar to grade 483, with higher wet strength and **low metals content**. Recommended for analysis of **tradewaste** samples. Also recommended for **environmental air monitoring** applications. 99.999% DOP retention.

333 - **General purpose** glass microfibre filter paper. Combines fine particle retention with high filtration speed.

423 - This grade offers a far higher flow rate than general analytical papers of similar particle retention. Recommended for use as a **membrane pre-filter** in combination with grade 363.

Enquire about our pre-packed serial combination glass microfibre pre-filters.