



# Filtration & Separation Technology




**MUNKTELL**



## Dear customers

We are very proud to present you our new catalogue Filtration & Separation Technology. Our program has been complemented by a variety of new products. We can now offer you a complete product range for laboratory filtration, environmental control industrial and medical applications as well as the newly added product TFN – Specimen Collection Paper for blood sampling and New Born Screening.

*The catalogue is divided in 5 different sections:*

-  **Laboratory Filtration**
-  **Environmental Control**
-  **Industrial Filter Papers**
-  **Medical Products**
-  **Grade Index and ordering information**

A large portion of our product range can be supplied on a private label basis. Our products are available through many distributors all around the world.

For our North American customers, we are happy to inform you about Munktell Inc., our newly established office and warehouse in North Carolina, which serves all customers in the United States and Canada. With Munktell Inc. we can offer you short lead times, high service level and as always a competitive pricing.

You are also most welcome to approach us directly should you require any further information.

**Gustav Kyrk**  
President  
Munktell Group

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### **United States and Canada:**

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## History

### *The world's first manufacturer of filter paper*

The Swedish chemist J.J. Berzelius (1779–1848) is regarded as the inventor of the first real filter paper. He was the first in using pure wet-laid all-rag paper for the retention of precipitates in chemical analysis.

At Berzelius' suggestion, the development and manufacture of such paper was begun around 1815 at J. H. Munktell's paper mill at Grycksbo. Similar production was later begun in England and Germany, but the "Swedish Filter Paper" retained its leading position, and its characteristics, particularly its purity, set the standard for analytical filter papers.

The paper which was hand-made at the time of Berzelius, is still made at the same paper mill today, but now with the aid of modern paper-making technology. Munktell filter papers with Berzelius picture – your assurance of original quality!



*Munktell Filter Papers were long delivered in hand-made birchbark packages.*



## And still one of the leading

Our products are sold under the trademark MUNKTELL. Munktell's many years of experience in the papermaking trade is the guarantee of high quality filter papers with properties tailored to different applications.

We will spare no effort to perpetuate Munktell's fine filter paper tradition. Intensive Research and Development work in paper technology vouches for a continuous improvement of our filter paper to meet the requirements of tomorrow.

1. Munktell Filter AB,  
World Head Office – Falun, Sweden
2. Munktell & Filtrak GmbH,  
Bärenstein, Germany
3. Munktell Inc.  
Raleigh, NC USA
4. Munktell Paper Mill  
Grycksbo, Sweden
5. Munktell & Filtrak GmbH  
Sales Office, Battenberg, Germany



Munktell products are distributed on a world-wide basis. Please contact us and we will forward your inquiry to your local dealer.

US and Canada: [info.us@munktell.com](mailto:info.us@munktell.com)

Europe/Africa/Asia/SouthAmerica: [info@munktell.com](mailto:info@munktell.com)

1.



2.



3.



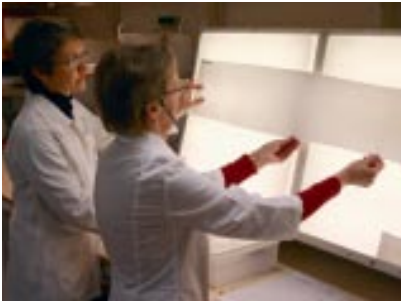
4.



5.



## Quality Management System – ISO 9001:2000



*All our efforts are focused on one goal:*

### **To win the confidence of the customers in the quality of our products and services**

We are doing our utmost to realize this ambition and will do all that is necessary to have products and services meeting even the highest expectations. At the end of the day, our business depends on your success.

Quality control already begins during development. At this stage, our chemists and technicians maintain close contact with our customers in order to tailor the right product for a given application. Raw materials are the basis for a consistent paper quality. This is why stringent quality checks are carried out for incoming goods. During production, consistency and degree of beating are watched very closely.

Automatic measuring devices during production in the course of an in-line production control in the paper machine register the slightest deviation. A continuous process control in the laboratory located at the paper machine provides a direct flow of information to the staff operating the machine. Quality measures on the production site are complemented by checks carried out in the quality department. Munktell's sophisticated test rigs correspond to the standard of modern technology.

Regular revision of measuring means guarantees their function and precision. The whole staff has been trained to know and implement the conditions and standards of quality control so that the next conversion step is only carried out when the respective demands have been met. We apply customer-orientated quality assurance also to the converting sections of our plant, creating thus a basis for a successful collaboration for many years to come.

## Quality Management System ISO 9001:2000

Munktell has implemented Quality Management Systems which are confirmed by certification to comply with all the requirements of the ISO 9001:2000 norm.

It is the application of these Quality Assurance Systems that guarantees a high quality standard and competitiveness in constantly more demanding markets and proceeding internationalization.

Moreover, the certification is a token of customer orientation from product design to customer service. Continuous product evolution and improvement of existing production processes help us outperform the required quality standard.

Along with a competent service, these merits will contribute to the acquisition of new customers and the strengthening of our existing relations.



## Quality Management System GMP/CE and ISO 13845:2003

As many of our products are used in medical-technical applications, our manufacturing and quality control procedures comply with the GOOD MANUFACTURING PRACTICES (GMP) and ISO 13845:2003.

Each step in the manufacturing process, from incoming materials through production up to finished products, is documented, validated and controlled. Upon request, we can provide you with certificates and technical data sheets.

Our quality management system is supervised and certified by INTERTEK, Stockholm, Sweden.





## Environmental Management System ISO 14001:2004

In order to control the influence that our products and processes have on the environment, we are using ISO 14001 as a guideline.

This means that we need to have full control over our

- incoming products
- production / processes
- waste / waste disposal
- environmental legislation

Our main targets are the minimization of any negative influence that might occur in our processes and the constant improvement of our performance.

ISO 14001 provides us with the elements of an effective environmental management system which we have implemented to achieve our environmental and economic goals.



## Environmental Management

Environmental Management is for us a token of acting economically and carrying ecological responsibility. This is why we have implemented this system for a voluntary preventive environmental protection.

## OEM and private labeling

Munktell has a long experience in supplying OEM products all around the world. Several major filter producers have our products as a complement to their own product line.

## We can supply the following OEM products

### Laboratory Filtration Products



- Filter Paper
- Thimbles
- Special Grades
- Membranes
- Syringe Filters
- Indicator Papers
- Chromatography/Blotting Papers

We focus our resources on service, quality, troubleshooting and close customer relationships. We are organized in a way that enables us to quickly and accurately respond to customer needs.

Product development focuses on specific customer or market needs and innovative approaches. We combine this with a profound knowledge of materials, chemistry and process to develop products that offer performance and quality leadership.

### Environmental Control



- Micro-Glass Fiber Papers
- Micro-Quartz Fiber Papers
- Air Filter Media

Should you have an idea for a new product or a specific demand, please do contact us.

### Medical Products



- Sterilization Papers
- Dental Papers
- Cytocentrifugation
- Neonatal/ New born screening
- Basic paper for forensic products

## Quantitative ashless

Quantitative ashless filter papers are recommended for quantitative analysis. As quantitative analysis requires a high purity, these filter papers are being washed out with acid.

Our ashless grades are made of pure cellulose with an alpha cellulose content of almost 100%.  
The ash content is less than 0.01 %.







For ordering information of standard sizes, please see grade index at p. 37.

Grade	Basis Weight g/m <sup>2</sup>	Filtration Velocity s/10 ml	Herzberg s/100 ml	Herzberg ml/min	Retention rate, µm
388	84	10	70	850	12-15
389	84	20	150	375	8-12
390	84	100	1200	50	3-5
391	84	180	2500	25	2-3
392	84	50	450	130	5-8
393	100	250	3500	17	1-2

More technical data of these grades are available on our web site [www.munktell.com](http://www.munktell.com)

## Color marking

To simplify your selection of quantitative ashless filter paper, Munktell uses a system of color marking.

Grade	Color code	Filtration properties	Applications
388		Fast filtering	For coarse and voluminous precipitates such as iron – aluminium – and chromium hydroxide; Si-determination in steel and pig iron analysis
389		Medium to fast filtering, medium wide pores	Typical grades for quantitative tasks, coarser precipitates such as lead-, iron- and silver sulphide; alcali carbonates; food stuff and soil analysis
392		Medium to slow filtering, medium, tight pores	Fast filtration of fine precipitates such as calcium oxalate, magnesium ammonium phosphate, coarser forms of barium sulphate
391		Very slow filtering fine pores	Fine-grained precipitates such as barium sulphate, metastannic acid, cuprous oxide
390		Slow filtering narrow pores	Filtration of fine precipitates such as lead dioxide, calcium fluoride, nickel sulphide, zinc sulphide
393		Particularly slow filtration very fine pores	For extremely difficult filtration conditions and particularly fine precipitates

## Qualitative Filter Papers

Our qualitative filter grades are used in basic qualitative analysis and are available as filter discs, sheets and folded filters. These papers maintain consistently high quality due to tightly controlled manufacturer parameters which ensure dependable sample filtration results, lot after lot year after year.

Munktell no. 1 and Munktell no. 2 are specially designed as equivalent to other well-known manufacturers of Qualitative Filter papers. Munktell no. 1 and Munktell no. 2, together with 292 are extremely pure filter paper grades and made of pure cotton pulp with an ash content of less than 0.06%. Our product range 1288–1292 grades are made of cellulose with an alpha content of nearly 100%. The ash content for these grades is below 0.1%.

For ordering information of standard sizes, please see grade index at p. 38–39.

Other sheet sizes and rolls available upon request.

### Applications:

- Clarifications of liquids for qualitative analysis
- Filtration of precipitates, such as calcium oxalate, lead sulphate and calcium carbonate
- Seed testing and soil analysis
- Wipes and gas detection monitors
- Filtration of buffers and dyes



Grade	Basis Weight g/m <sup>2</sup>	Ash content, %	Herzberg s/100 ml	Retention rate, µm	Typical thickness, µm
Munktell no. 1	88	< 0.06	150	10	180
Munktell no. 2	97	< 0.06	240	8	190
292	87	< 0.06	500	5-8	180
1288	84	< 0.1	70	12-15	210
1289	84	< 0.1	160	8-12	200
1290	84	< 0.1	1200	3-5	160
1291	84	< 0.1	2500	2-3	160
1292	84	< 0.1	400	5-8	180

## Qualitative Papers

Grade	Filtration Properties	Applications
1288	Fast Filtering, wide pores, hardened	For coarse and voluminous precipitates such as iron-aluminum- and chromium hydroxide; Si-determination in steel and pig iron analysis
1289	Medium to fast filtering, medium wide pores, hardened	Typical grade for quantitative tasks, coarser precipitates such as lead-, iron- and silver sulphide; alkali carbonates; beer and malt analysis
1292 Munktell no. 1 292	Medium to slow filtering, medium tight, hardened (1292)	Fast filtration of fine precipitates such as calcium oxalate, magnesium ammonium phosphate, coarser forms of barium sulphate
1290 Munktell no. 2	Slow filtering, narrow pores, hardened (1290)	Filtration of fine precipitates such as nickel sulphide, lead dioxide, calcium fluoride, zinc sulphide
1291	Very slow filtering, fine pores hardened	Fine-grained precipitates such as barium sulphate, metastannic acid, cuprous oxide





## General Purpose Filter Papers

These papers are made for general purpose filtration with a low ash so that they can be used for ordinary qualitative filtration work. Our range of general purpose filter papers are designed for a variety of applications with different basis weights and properties such as for instance surface structure.

Our standard grades 1001–1003 are an economical alternative for basic qualitative laboratory filtration.

All papers are made of very pure cellulose with a high alpha cellulose content that gives an average ash content of 0.1%.



Standard grades	Basis Weight g/m <sup>2</sup>	Surface	Herzberg s/100 ml	Retention rate, µm
1001	90	Plain	1200	2–3
1002	90	Plain	240	6–10
1003	90	Plain	80	12–15
Special grades	Basis Weight g/m <sup>2</sup>	Surface	Herzberg s/100 ml	Retention rate, µm
3 hw	65	Plain	140	8–12
3 h	65	Plain	330	7–10
4 b	75	Plain	165	8–12
6	80	Plain	70	10–13
34/N*	60	Creped	40	> 20
1602/N	70	Creped	50	> 15
53*	70	Embossed	150	8–12
603/N	75	Creped	65	> 15
55/N*	75	Creped	120	10–13
37/N	135	Creped	40	> 20
39/N	180	Creped	40	> 20

\* Products not listed in grade index, available on request

For ordering information of standard sizes, please see grade index at p. 39–38 and 44–46.

## Selection Guide for Filter Papers

Selecting the right filter can sometimes be difficult, this guides simplifies the selection of filter for you application. More detailed technical information, such as data sheets, is available at our web site: [www.munktell.com](http://www.munktell.com). Please do not hesitate to contact our customer service, should you need more information (contact information at the back side of the catalogue).



Analytical		General Purpose	
Quantitative	Qualitative	Qualitative/Technical	
005*	5*	37/N or 39/N	Gel-type
388	1288	1003, 1602/N, 603/N or 34/N	Coarse cristalline
389	Munktell no. 1 or 1289	1002, 4 b, 3 hw, 53 or 6	Medium cristalline
392 or 390	Munktell no. 2, 292 or 1290	1001 or 3 h	Fine cristalline
391 or 393	1291	n/a	Very fine cristalline

\* Special grades, available on request

All of Munktell's products can be supplied either in filter discs, as folded filters, sheets or rolls. Here are some of the standard sizes. For other request, please contact us and we will be happy to give you a quote.

For ordering information of standard sizes, please see grade index at p. 37–46.

Standard sizes – Filter circles, Ø in mm														
45	50	55	70	90	110	125	150	185	240	270	320	385	450	500

Standard sizes – Folded Filters, O in mm									
90	110	125	150	185	240	320	385	450	500

## Chromatography and Blotting Papers

Made of pure cotton linters. Produced with an alpha-cellulose content of nearly 100%. In this page's chart, they are listed according to their basis weights and absorption capacity. Here are some hints as to their practical application:

- To obtain reproducible results, the fiber direction has to be taken into account
- The capillary rise is always higher in machine direction than in cross direction.
- The machine direction can be determined with a drop of water
- The larger elliptical diameter of the water drop is an indication for the machine direction.



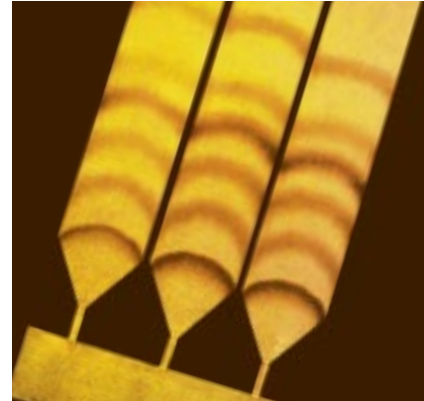
For ordering information of standard sizes, please see grade index at p. 40–41.

Other dimensions and sheet sizes available upon request.

Chromatography				
Grade	Basis Weight g/m <sup>2</sup>	Capillary Rise mm/30 min.	Thickness mm	Absorption
FN 1	90	145	0.20	fast
FN 2	120	145	0.25	fast
FN 3	90	93	0.18	medium fast
FN 4	120	93	0.24	medium fast
FN 5	90	60	0.17	slow
FN 6	120	60	0.22	slow
FN 7	150	145	0.32	fast
FN 7a	200	145	0.32	fast
FN 8	280	190	0.55	very fast
FN 30	320	235	0.90	very fast
FN 100	195	115	0.35	fast

Base paper for Indicators and Reagents		
Grade	Basis Weight g/m <sup>2</sup>	Capillary Rise mm/30 min.
64	100	80
64 a	135	80

Blotting Papers			
Grade	Basis Weight g/m <sup>2</sup>	Capillary Rise mm/10 min.	Thickness mm
BF 1	90	80	0.16
BF 2	190	70	0.36
BF 3	330	130	0.76
BF 4	550	160	1.3
FN 100	195	130 mm/30 min.	0.35
1600	250	70	0.5



Application of Blotting Papers	
	Grade
Cover for gel-membrane sandwich	BF1, BF2
Slot and Dot processes, gel-lifting, buffer-wicking, semi dry blotting	BF 2, FN 100, 1600
Capillary and semi dry blotting, liquid buffer for DNA and RNA	BF 3, BF 4
Liquid buffer, highest absorbency	BF3, BF 4
Pulp testing, according to ISO 5269 - 1:2005	1600



*Grade 1600 is designed for pulp testing (preparation of laboratory sheets for physical testing) according to ISO 5269-1:2005.*





## Indicator – and Reagent papers

Munktell offers a wide range of Indicator – and reagent papers that are available both in form of strips or rolls. Base paper for indicators and reagents are found at p. 16.

### Indicator Papers without Color Scale

Booklets of 100 strips – Size: 9 x 65 mm

### Typical Applications

General tests on acid or alkalic reactions.

Test on neutralization or if already crossing from acidic to alkalic phase or opposite has been effected. Litmus paper is one of the oldest and most popular indicator papers.

Product Name	pH Range	Color Change	Application
Congo Red Paper	5.0-3.0	red → blue	Neutralization analysis Acid detection
Phenolphthalein Paper	8.3-10.0	white → red	Neutralization analysis Determination of strong alkaline reaction
Lithmus Paper blue	8.0-5.0	blue → red	Test for acid reaction Neutralization test
Lithmus Paper red	5.0-8.0	red → blue	Test for alkaline reaction Neutralization test

### Indicator – and Reagent Papers

Munktell first class cotton linters papers are soaked in indicator dye stuff mixtures or chemicals changing their color within a certain pH range or in the presence of determined substances. With Munktell indicator papers you will get:

- a broad selection covering the whole pH range in intervals of 0.2 and 0.3
- quick and precise testing of colored, turbid as well as clear aqueous solutions
- highest level of accuracy due to several adjacent indicator zones for rolls

### pH- indicator papers are available in form of:

- Strips in boxes of 200 pcs. each
- Rolls in a plastic twist cap dispenser, length 6 meters each
- Refill packs with 2 rolls are available

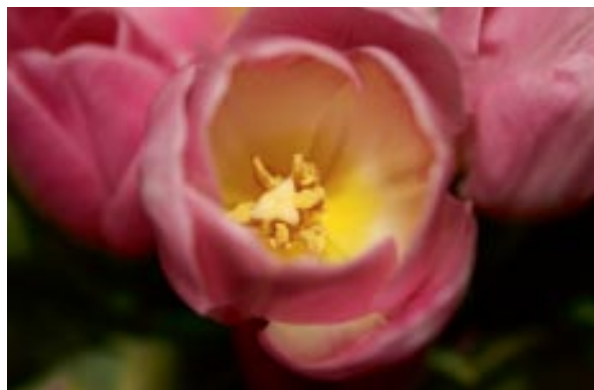
pH strips and rolls are available on request. Please contact us for an offer.



## Filter paper for Seed Testing and Soil Analysis

### Soil Analysis

Since many years, Munktell offers high quality filter papers for determination of toxical substances, nutrients for plants and trace elements in soil specimen. All products are available either as filter discs, folded filters or other various other sizes. You will find some of the most frequently sold sizes and products in the grade index at p. 37–46. Special products are available on request.



Grade	Basis Weight g/m <sup>2</sup>	Filtration Velocity sec/10 ml	Herzberg s/100 ml	Application
3 hw	65	20	140	general filtration
13 P*	80	60	240	low phosphate content
14 P*	80	150	750	low phosphate content
14 M*	80	150	750	low magnesium content
131	80	100	1300	low phosphate & potassium content
132	80	55	450	low phosphate & potassium content
292	87	45	500	low nitrogene content
Munktell no. 2	97	60	650	low nitrogene content
390	84	100	1200	quantitative paper
389	84	20	150	quantitative paper

\*Special products, available on request

You are most welcome to contact us in order to obtain specific information about soil testing and suitable filter papers.

### Seed Testing Papers

Munktells Seed Testing Papers are widely used by seed testing institutes and others for germination capacity testing and for health tests e.g. Jacobsen (Copenhagen tank), on top of paper and osmosis test. Munktell towels have been specially developed for germination capacity testing of cereals. From an occupational safety point of view, this method is greatly preferred to a conventional method of growing in sand.



Grade	Basis Weight g/m <sup>2</sup>	Capillary Rise mm/10 min.	Ash Content %	Type
1700	135	65	0.1	Circles w. hole, wicks and sheets
1701	135	55	0.1	Circles and sheets
1731	400	70	0.1	Circles and sheets
C350	350	80	0.1	Circles and sheets
1750**	90	80	0.1	Sheets – 220 x 400 mm
1755**	93	Polyethylene – coated	n/a	Sheets – 190 x 400 mm

\*\* 1750 and 1755 are used in combination

## Seed Testing and Soil Analysis

### Guide for Germination capacity and Health tests

Species	Method (apparatus)	Grade	Application	
			Germ. Capacity	Health tests
Smaller seeds (grasses etc.)	Jacobsen (Copenhagen tank) Top of Paper	1700, 1701 (circles)	X	X
		1700 (wicks, sheets)	X	X
Smaller seeds (grasses etc.)	Germination cabinet Top of Paper	1701 (sheets)	X	
		1200 (underlay)*	X	
Cereals	Rolled towel Between paper	M – Towel*	X	
		Pair of 1750 + 1755	X	
Cereals	Dishes or boxes Top of Paper	1731 (circles)		X
				X
Cereals	Osmosis test	1731 (circles)		X
Peas	Between paper	1760	X	
Beet and pelleted seeds	Pleated paper	1765		

Standard sizes and ordering information in grade index at p. 41.

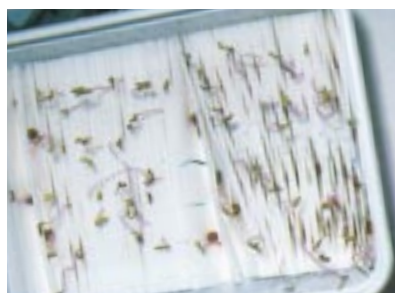
## Other papers for Germination and Seed testing

Germination and seed test papers are wet strengthened for use in germination tests of seed specimen to improve seed growth and growth velocity. Available both in form of white pleated strips for germination capacity test in Petri dishes test especially for beet seed acc. to NEEB and in form of circles. They are of high purity, offering absolutely reproducible results and are internationally recognized by all leading laboratories. You will find further descriptions in the ISTA Manual.

Grade	Basis Weight g/m <sup>2</sup>	Method	Finish
6	80	Carrier filter	plain, strips
1765	120	inlay strips	plain, strips
4 b	75	inlay strips	plain, strips
1765	120	for beet seeds	folded, white
37/N	135		creped, strips
39/N	180	for cold tests	plain, strips
58*	150	Jacobsen	plain, circles
152A*	340		board, plain

\* Special products, available on request

Beet seeds in pleated strips



Grass seed on Circles



Gentain seeds, different treatments





## LabSorb® and LabSorb Ultra® – Surface Protection Paper

We are proud to present our new line of surface protection paper, especially developed for tough laboratory conditions. LabSorb uses a dual-layer design to prevent spillage and contamination.

- Layer 1; highly absorbent carrier paper which quickly absorbs spilled liquids.
- Layer 2; wetness impermeable polyethylene, prevents the covered surface underneath from contamination.

LabSorb® protects benches and working areas. Spilled chemicals, toxic, infectious, aggressive and radioactive substances are quickly soaked up into the carrier material (paper).

The polyethylene layer prevents contamination underneath and it is particularly suitable for clinical laboratories as it can be treated with disinfectants to prevent contamination.

LabSorb® is also suitable for lining out chemical cupboards, trays and experimental animal cages. Furthermore, the soft character of the carrier material lowers the risk of breaking glass.

LabSorb® is available in two versions:

Grade	Basis weight , g/m <sup>2</sup>	Water absorption	Finish
LabSorb®	140	200%	Highly absorbent paper with P/E coating
LabSorb Ultra®	187	350%	Ultra absorbent tissue with P/E coating

For standard sizes and ordering information, please see the attached grade index at p. 41–42.

## Special Products

### Filter papers for sugar laboratories

Munktell has a complete line of products specially designed for laboratories within the sugar industry, suitable both for analysis of sugar beets or sugar cane. The sample is mashed and then further analyzed according to the aluminum sulphate method. By means of e.g. spectrophotometry, potassium-, nitrogene- sodium- and saccharine content can be determined.

Grade	Basis Weight g/m <sup>2</sup>	Finish
20	120	Plain, qualitative
55/N	75	creped
3 hw	65	Plain, qualitative
470	140	Plain with kieselguhr
95/5	150	Plain with kieselguhr
69/K	155	Filter paper with activated carbon
50	90	Plain, in coffe filter form, folded
100/N	85	Belt filter for filter units, plain
6 S/N	145	Creped
601/N	65	Creped



*Sugar Cane*





## Special Products

### Filter papers for use in breweries

For malt filtration and malt analysis acc. to International brewery standards as well as for gas removal prior to beer analysis.

Grade	Basis Weight g/m <sup>2</sup>	Filtration vel. s/10 ml.	Properties	Finish
41 b	75	22	Medium-fast filtration	Plain
6	80	18	Thicker and faster, higher wet-strength compared to 41 b	Plain
53	70	18	Medium-fast filtration, wetstrengthened	Embossed
1292	84	50	Medium tight, medium filtration	Plain
1289	84	20	Medium wide pores, medium-fast filtration	Plain
470	140	80	Slow filtration, thick Kieselguhr paper	Plain



### Filter papers for use in wine laboratories

Grade	Basis Weight g/m <sup>2</sup>	Filtration vel. s/10 ml.	Properties	Finish
293	80	300	Slow filtration, fine pores	Plain
3 hw	65	20	Medium – fast filtration, high wet strength	Plain
37/N	135	4	Fast filtration, soft, wide pores	Creped
39/N	180	4	Fast filtration, soft, wide pores, thick paper	Creped
470	140	80	Slow filtration, Kieselguhr, thick paper	Plain
MGA	52	105	Micro glass fiber, high flow rate, clarification	n/a





## Special Products

Munkell can offer a many different sorts of paper for various applications. Here are some of the special products that we offer. For other applications, please do not hesitate to contact us to help you select the right filter.

Grade	Basis Weight g/m <sup>2</sup>	Filtration vel. s/10 ml.	Finish	Applications
4 b	75	18	Plain	Universal filter for chemical and pharmaceutical industry. Especially suited for alcohols, tinctures etc.
69/K	160	65	Plain	Activated carbon paper used for clarification and brightening of dark urine for polarimetric sugar determination
1200	280	15	Plain	Gelatine and oil filtration. For use in filter presses for transformer oil filtration
605	20	n/a	Plain	Parchment cuttings, weighing syrup like substances, sugar labs
2113	10	n/a	n/a	Lens cleaning paper. Non-linting silk paper, used for cleaning optical glasses, bulbs and metallographic grinding.
388R	80	n/a	Plain	Soot determination paper. Collection soot specimen or oil derivates from gas chimneys
480	85	n/a	n/a	Hydrophobic, silicon impregnated paper. Separation of aqueous solution from organic solutions





## Cellulose extraction thimbles for Soxhlet extraction

Munktell extraction thimbles, grade ET/401, are perfect sample reservoirs for Soxhlet extraction in quality control, research and/or analysis. Solvent extraction from solids and semi-solids can be carried out easily and reliably. The thimbles are specially designed to fit Soxhlet extractors and automatic extractors. All Munktell extraction thimbles are hollow cylinders with round bottom.

### Features of Munktell thimbles:

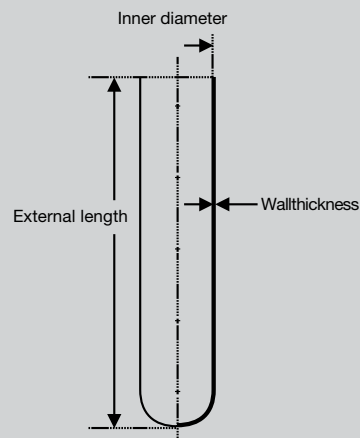
- Reproducible high quality
- Made of selected raw material
- Monitored size accuracy

### Examples of use:

- Determination of fats in food- and feeding stuff
- Pollutants in environmental and residue analytics
- Incoming components inspection of natural products from plants in the pharmaceutical industry
- Polymer determination in polymer industry

### Tolerances

Inner diameter (ID) (mm)	+0/-3
External length (mm)	± 1
Wall thickness (mm)	1.5 ± 0.5
Ash content (%)	<0.1



Grade ET/401 Standard sizes (inner diam. x ext. length in mm. )

9 x 50	10 x 50	16 x 100	19 x 90	20 x 80	22 x 60	22 x 80 <sup>1</sup>	23 x 100	25 x 55	25 x 60	25 x 75
25 x 80	25 x 100 <sup>1</sup>	26 x 60 <sup>3</sup>	26 x 80	26 x 95	26 x 100	27 x 80	28 x 22 <sup>4</sup>	28 x 80	28 x 100	30 x 80
30 x 95	30 x 100	30 x 180	33 x 80 <sup>2,3</sup>	33 x 90	33 x 94 <sup>1</sup>	33 x 100	33 x 118	33 x 130	33 x 205	35 x 120
37 x 95	37 x 130	40 x 150	43 x 80	43 x 123 <sup>1</sup>	48 x 130	48 x 200	48 x 230	53 x 145	57 x 315	58 x 170

<sup>1</sup>fits Büchi B-811   <sup>2</sup>fits Gerhardt Soxterm Automatic   <sup>3</sup>fits Foss Tecator Soxtec System   <sup>4</sup>fits Foss Soxtec 2050

Ordering information is found in grade index at p. 42.

## Special Products

### Micro-Glass Fiber Thimbles – Grade ET/MG 160



Munktell's high purity micro-glass fiber thimbles can be used in temperatures up to 500°C. They are particularly recommended for aggressive solvents and for analytical registration of environmental pollution.

**Grade ET/MG 160 – Standard sizes (inner diam. x ext.length in mm. )**

10 x 50	22 x 80	23,8 x 68 <sup>1</sup>	26 x 60	26 x 80	30 x 77
30 x 95	33 x 80	33 x 94	33 x 150	43 x 123	53 x 145 <sup>1</sup>

<sup>1</sup> fits Gothe Systems

Ordering information at p. 42 of grade index.

### Micro-Quartz Fiber Thimbles – Grade ET/MK 360

Our line of Micro-Quartz fiber thimbles are specially developed for analysis of air pollution. They are made of binder-less quartz fiber material and temperature-resistant up to 900°C.

**Grade ET/MK 360 Standard sizes (inner diam. x ext.length in mm. )**

21,5 x 68 <sup>1</sup>	22 x 62	25 x 100	30 x 97	34 x 150	35 x 150
43 x 123	53 x 145 <sup>1</sup>				

<sup>1</sup> fits Gothe Systems

Ordering information at p. 42–43 of grade index.

### Technical Data – Munktell Extraction thimbles

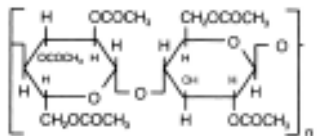
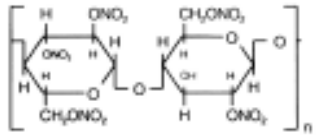
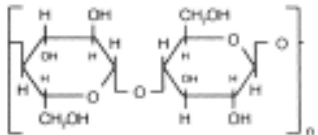

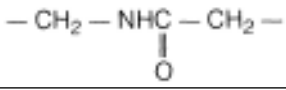
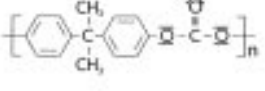
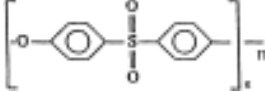
Thimble type	Cellulose – ET/401	Micro-Glass fiber – ET/MG 160	Micro-Quartz fiber – ET/MK 360
Inner diam. – mm.	+0/ -3	+0/ -3	+0/ -3
Thimble ext. length – mm.	± 1	± 1	± 1
Wall thickness – mm.	1.5 ± 0.5	2 ± 0.5	2 ± 0.5
Ash content – %	< 0.1	-	-
Penetration – % DOP (0.3 µm)	-	< 0.002	< 0.002
Temperature resistance – °C	-	500 max.	900 max.

All thimbles are available in boxes of 25 pcs. each. Other types and sizes available upon request.

## Micro Filtration

Munktell offers a complete program of micro filtration products such as membranes and syringe filters. As always, we offer high quality and competitive pricing. In the following pages you will find a selection of micro filtration products that we offer. All membranes and syringe filters are available on request and please do not hesitate to contact us for a quote.

### Membrane Filtration Media

Type	Description
<p><b>Cellulose Acetate</b></p> 	<p>Low protein adsorption, excellently suited for sterile filtration and clarification of aqueous solutions, nutrient media, buffers and sera. These hydrophilic membranes stand out for their high flow rates and thermal stability of max. 180°C.</p>
<p><b>Cellulose Nitrate</b></p> 	<p>This is the standard material for analytical and microbiological membrane filtration. Available in a wide range of pore sizes. 0.45 µm pore size is often used for particle retention. Due to its high absorption for biomolecules, this membrane is very advantageous for diagnostic kits and blotting techniques.</p>
<p><b>Regenerated Cellulose</b></p> 	<p>Resistant to solvents and hydrophilic, 0.45 µm pore size is standardly used for cleaning and de-gasing of e.g. eluents for HPLC.</p>
<p><b>PTFE</b></p> 	<p>Permanently hydrophobic filter material, very suitable for air and gas filtration. This type of membrane stands out for its chemical compatibility and is the filter for acids and aggressive solvents.</p>
<p><b>Polyamide</b></p> 	<p>Chemically resistant to alkaline solutions and organic solvents. This membrane type offers particularly high mechanical stability.</p>
<p><b>Polycarbonate</b></p> 	<p>Track-etch-membrane filters, with very low halogen blind values and uniform and precise capillary pore structure. Their smooth, flat surface results in high visibility of captured particles.</p>
<p><b>Polyethersulfone</b></p> 	<p>Membranes with high mechanical stability, excellent flow rates and lowest protein adsorption; perfect choice for the filtration of biological and pharmaceutical specimen.</p>
<p><b>Glass Fibre Pre-Filters</b></p>	<p>Glass fibre pre-filters are placed directly on top of the membrane filter in order to increase the filtrable volume in case of clarification and sterile filtration.</p>

## Selection Guide – Membrane filtration media

Membrane Type	Available pore size (µm)	Flow rate for water <sup>1,2</sup> (ml/min)	Bubble point <sup>1</sup> (bar)	Color	Color/Grid <sup>3</sup>					Extractables with water	Chemical compatibility	Thermal Stability	Sterilization
					White/Black	White/Green	Green/Dark green	Gray/White					
Cellulose Acetate	0.2	24	>2.9	x						<1%	resistant against aqueous solutions, pH 4-8, against most alcohols, hydrocarbonates and oils	Max 180°C	autoclaving at 121°C or 134°C, dry heat, gamma radiation (25 kGy) or with ethylene oxide
	0.45	69	1.9	x									
	0.65	130	1.3	x									
	0.8	200	0.8	x									
Cellulose Nitrate	0.2 <sup>***</sup>				x					<1%	resistant against aqueous solutions, pH range 4-8, against hydrocarbonates and some solvents	Max 130°C	autoclaving at 121°C, gamma radiation (25 kGy) or with ethylene oxide
	0.45	69	2.4	x	x	x	x	x					
	0.65	130	2.0	x	x	x		x					
	0.8	200	1.4	x	x			x					
	1.2	320	1.0	x	x	x							
	3	430	0.6	x									
	5	570	0.5	x									
8	750	0.3	x										
Regenerated Cellulose	0.2	16	4.4	x						<1%	resistant against almost all solvents and against aqueous solutions, pH range 3-12		autoclaving at 121°C or 134°C, dry heat (180°C), gamma radiation (25 kGy) or with ethylene oxide
	0.45	28	2.8	x									
PTFE	0.2	0.2 <sup>**</sup>	1.0 <sup>*</sup>	x						non detectable	resistant to almost all chemicals		autoclaving at 121°C or 134°C or with ethylene oxide
	0.45	0.3 <sup>**</sup>	0.7 <sup>*</sup>	x									
	1.2	1.6 <sup>**</sup>	0.45 <sup>*</sup>	x									
	5	4 <sup>**</sup>	0.1 <sup>*</sup>	x									
Polyamide	0.2	>12	3.4	x						<1%	resistant to may solvents and alkali-solutions, pH range 3-14		autoclaving at 121°C or 134°C or with ethylene oxide
	0.45	>26	2.2	x									
Polycarbonate	0.2		4.8	x						Low		Max 140°C	autoclaving at 121°C
	0.4		2.5	x									
Polyethersulfone	0.1	>7	>2.1 <sup>*</sup>	x						<2%	resistant to some solutions and aggressive, aqueous solutions, pH 1-13		autoclaving at 121°C and 134°C, gamma radiation (25 kGy) or with ethylene oxide
	0.2	>28	3.2	x									
	0.45	>32	2.3	x									

\* with Isopropanol/Water (60/40)

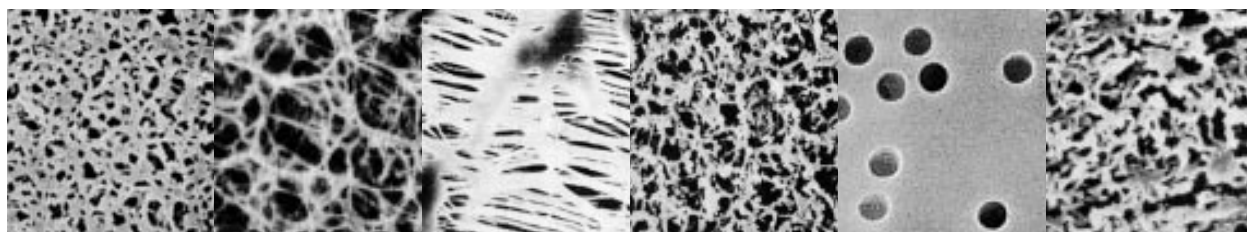
\*\* Air; l/min at Δp=0.05bar (5kPa; 0.725psi)

\*\*\* application microbiology, only

<sup>1</sup>acc DIN 58355

<sup>2</sup>average value per cm<sup>2</sup> area at Δp = 1 bar (100 kPa; 14.5 psi)

<sup>3</sup>Cellulose Nitrate Membranes gridded, sterile and non-sterile available, Ø upon request for microbiological studies



Cellulose Acetate Membrane Filter

Regenerated Cellulose Membrane Filter

Hydrophobic PTFE Membrane Filter

Polyamide Membrane Filter

Polycarbonate Membrane Filter

Polyethersulfone Membrane Filter





## Selection Guide – Syringe Filters

Membrane	Polyether Sulphone			Cellulose Acetate							Cellulose Acetate with GF			GF depth filter	Nylon		PTFE					PTFE	Regenerated Cellulose						
	0.1	0.2	0.45	0.2	0.45	0.65	0.8	1.2	5	0.2	0.45	1.2	-	0.2	0.45	0.2	0.2	0.2	0.45	0.45	0.45	0.2	0.2	0.2	0.45	0.45	0.45		
Filter diameter (mm)	28	28	28	28	28	28	28	28	28	28	28	28	28	28	25	4	15	25	4	15	25	26	4	15	25	4	15	25	
Housing <sup>1</sup>	MBS	MBS	MBS	MBS	MBS	MBS	MBS	MBS	MBS	MBS	MBS	MBS	MBS	PP	PP	PP	PP	PP	PP	PP	PP	MBS	PP	PP	PP	PP	PP	PP	
Color code	dark red	royal blue	yellow	blue	yellow	pink	green	red	brown	blue	yellow	red	white	printed <sup>4</sup>	printed <sup>4</sup>		printed <sup>4</sup>	printed <sup>4</sup>		printed <sup>4</sup>	printed <sup>4</sup>	white		printed <sup>4</sup>	printed <sup>4</sup>		printed <sup>4</sup>	printed <sup>4</sup>	
Process volumé	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	1	20	100		20	100		1	20	100	1	20	100	
Sterilisation																													
EO	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
GI	X			X	X	X																							
Feasible Sterilisation																													
EO		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
GI		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AU																X	X	X	X	X	X	X	X	X	X	X	X	X	X
Connector inlet																													
Female Luer Lock	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Male Luer Slip																													
Connector outlet																													
Male Luer Lock	X	X	X	X	X			X	X	X	X	X	X										X	X					
Male Luer Slip		X	X	X	X	X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Male Spike																	X			X					X				
Pack size																													
50 units, sterile, individually 5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
50 units non-sterile																	X	X	X	X	X	X	X	X	X	X	X	X	X
100 units non-sterile																								X					
200 units non-sterile																		X				X				X			X
500 units non-sterile	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1000 units non-sterile																									X				
Applications																													
Sterile Filtration																													
Sterile Venting																													
Chromatography sample preparation																													
Clarification																													
Medical																													

<sup>1</sup>MBS: Meta acrylate butadien styrene polymerisate; PP: Polypropylenen

<sup>2</sup>Process volume is a recommended value and depends on the ratio of retentive substance

<sup>3</sup>EO: Ethylene oxide; GI: Gamma irradiation; AU: Autoclave 121°C, 30 min

<sup>4</sup>Pore size and type of membrane of 15 and 25 mm syringe filters is printed on the housing, 4 mm filter units are packed in a color coded tray (blue for 0.2 µm, yellow for 0.45 µm)<sup>6</sup>

<sup>5</sup>Possible sterilisation modality

<sup>6</sup>Surfactant-free Cellulose-Acetate

<sup>7</sup>Binder-free glass fibre depth filter

## Micro-Glass Fiber Filters for Water Pollution Control

Micro-glass fiber filters, due to their very fine fibers, allow high efficiency rates even down into the submicronic range combined with good permeability and high dirt holding capacity. They are non-hygroscopic and biologically inert. The chemical resistance to most solvents and reagents is very good except for hydrofluoric acid as well as acids and alkaline solutions of high concentration. All resist to temperatures of about 500 °C. Our binder-free filters are especially suitable for water pollution control giving the following benefits for the end-user:

- High flow velocity yet high efficiency for the retention of small and even smallest particles.
- Produced without binder.
- Versatile usage both for drinking and service water filtration.
- Grade MGC is also a universal filter for the determination of suspended solids in water.

The following list contains recommendations as to the application of these micro-glass fiber filters. Quite often it is necessary to find an individual solution, so therefore please do not hesitate to contact us for advice to your filtration problems.



Grade	Application
MGA	Highly efficient for general laboratory filtration, clarification of buffer and reagent solutions, corresponds to many international standards for air and water pollution monitoring
MGB	Filtration of suspended solids in water, waste water analysis, pre-filters for membranes, suitable for filtration of large volumes
MGC	Standard filter for the clarification and monitoring of waste water and water, scintillation counting on the filter, cell harvesting, hydrocarbon analysis where cellulose fibers are a nuisance
MGD	Universal membrane pre-filter material
MGF	Higher efficiency in particle retention for smaller particles than other glass fiber grades, clarification of protein solutions, filtration of liquids prior to HPLC
MGG	Filtration and monitoring of water

Grade	Basis Weight g/m <sup>2</sup>	Thickness mm	Particle Retention in liquids μm	Pressure Drop* mbar	Finish
MGA	52	0.25	1.6	33	Binder-free
MGB	143	0.7	1.0	95	Binder-free
MGC	52	0.26	1.2	54	Binder-free
MGD	120	0.53	2.7	16	Binder-free
MGF	75	0.45	0.7	120	Binder-free
MGG	65	0.28	1.5	30	Binder-free

\* A = 10 m<sup>2</sup>, flow velocity 40 cm/sec.

Ordering information and standard sizes are found at grade index p. 43-44.

## Munktell MG 550-HA – Temperature Resistant up to 550° C

Munktell grade MG 550-HA is a binder-free glass fiber filter suitable for suspended solid analysis. The technical data of MG 550-HA corresponds to standard methods for determining total suspended solids in water. Other

applications where MG 550 HA is recommended include cell harvesting, air pollution control and liquid scintillation counting.

Grade	Basis Weight g/m <sup>2</sup>	Thickness mm	Particle Retention in liquids µm	DOP Penetration %, 0.3 µm particle	Finish
MG 550-HA	65	0.3	1.5 (approx.)	< 0,02	Binder-free

## Synthetic Filter „SUSP 70“ – Fabric Filter „SUSP 70“

SUSP 70 is a polyamide fabric for determination of coarse particles, including fibers in waste water and their residue on ignition. SUSP 70 has a mesh size of 70 µm. This type of fabric filter can also be offered

in other mesh sizes. SUSP 70 is a special grade and available on request. Standard sizes are filter discs of 47, 50 and 55 mm in diameter.

## Micro-Glass Fiber Filters for Air Pollution Control



Our glass fiber materials are made of borosilicate glass and bound together by synthetic binders. The use of fine fibers provides high efficiency rates down to the sub-micronic range combined with high dirt holding capacity and good air permeability. These filters are compatible with a large number of inorganic and organic solutions and they are physically and biologically inert. Micro-glass fiber papers with binder resist temperatures of about 180°C and for short periods even 220°C to 250°C. Glass fiber papers without binder withstand temperatures of about 500° (550° C MG 550-HA)

All Micro-Glass Fiber Filters for Air Pollution Control are available on request.

Grade	Basis Weight g/m <sup>2</sup>	Pressure Drop Pa (5.3 cm/s)	Efficiency % (0.3 µm)	Finish
MG 227/1/60	60	260	99.9	Hydrophobic binder
MG 400	80	400	99.999	Hydrophobic binder
MG S	75	300	99.985	Hydrophobic binder
MG T	75	450	99.999 (0.12µm)	Hydrophobic binder
1336/2 K100	104	360	99.97	Hydrophobic*
MG 160	75	500	99.998	Binder-free

\* Laminated with PET scrim

## Air Pollution Control

Standard Sizes, Circles Ø in mm.					
37	45	47	55	70	90
95	100	110	120	125	150
185	240				

Typical Levels of Trace Elements in MG 160 – ppm										
As	Cd	Cr	Cu	Fe	Mn	Ni	Pb	Sb	V	Zn
3	0.03	12	3	400	20	4	3	2	1	50

## Micro-Quartz Fiber Filters

Filter media made of pure micro-quartz fibres with-out glass fibres and binder. Particularly appropriate for emission control at high temperatures of 900 °C and wherever absolute purity of the filter medium is required. Excellent filtration properties, minimal metal contents, outstanding weight and dimension stability. Can also be used for the filtration respectively the analysis of acidic gases (except HF).

Munktell offers two version of quartz fiber filter material:

- Grade MK 360 micro-quartz fiber filter, conditioned (pre-heated) with batch specific certificate of trace elements.
- Grade T 293 micro-quartz fibre filter

All Munktell quartz fiber products have the following characteristics:

- Made of extremely pure micro-quartz fibers
- Binder-free
- Particularly suitable for low amount of particles for stack gas control

Available forms: circular filters, sheets and reels acc. to requirements of the test rig used.

For ordering information please refer to the enclosed grade index at p. 44.



Micro Quartz fiber paper

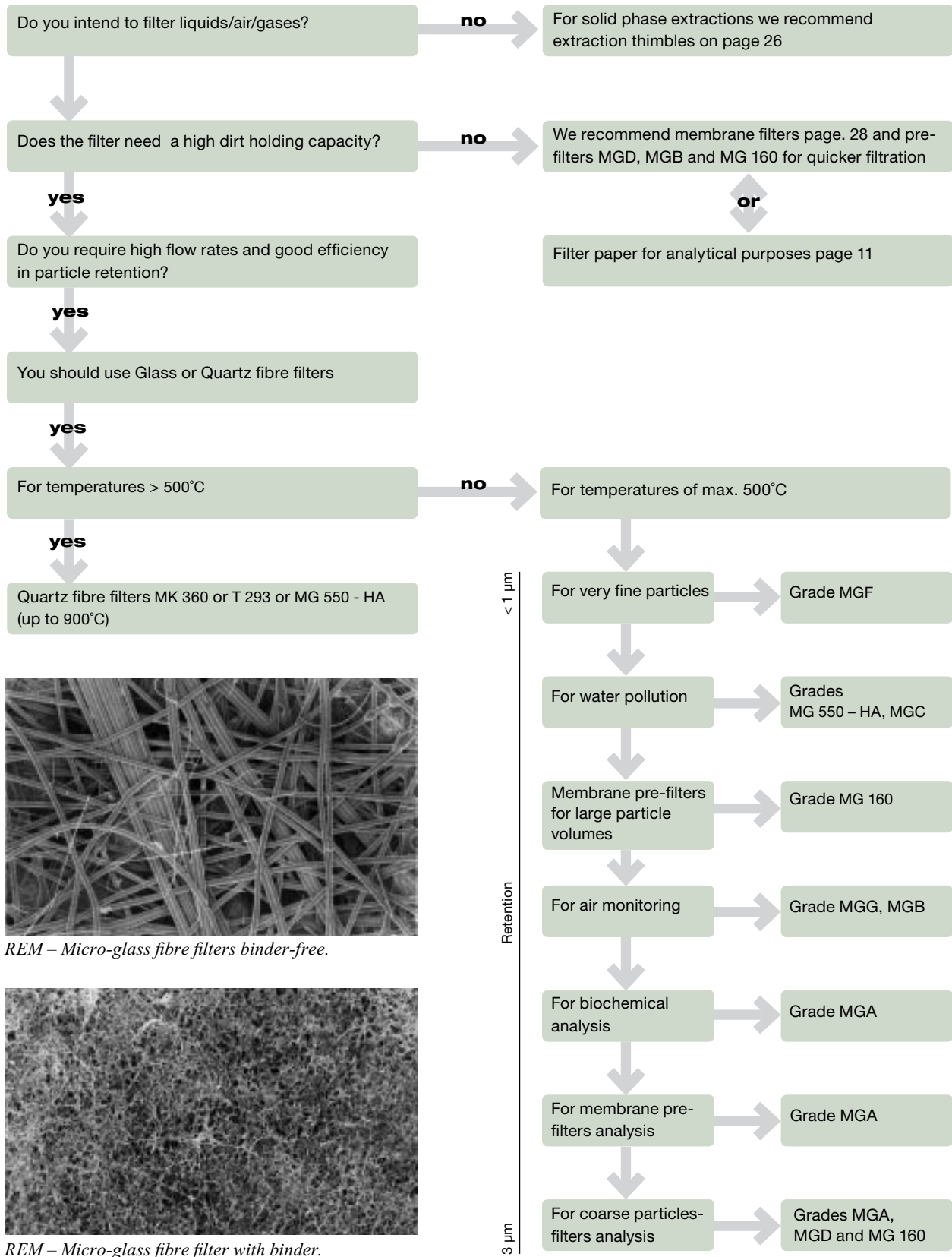
Grade	Basis Weight g/m <sup>2</sup>	Pressure Drop* mbar	Penetration % (0.3 µm)	Temperature °C
MK 360	85	51,5	< 0.002	900 max.
T 293	85	51,5	< 0.002	900 max.

Standard Sizes , Circles Ø in mm.					
27	28	37	45	47	50
55	70	90	100	103	110
120	142	150	185	240	293

Typical Levels of Trace Elements in MK 360 and T 293 – ppm																
Al	Ba	Ca	Cd	Co	Cr	Cu	Fe	Mg	Mn	Na	Ni	Pb	Sr	Ti	V	Zn
300	10	250	0.002	<0.5	2	2	50	25	2	100	2	<1	3	<1	<5	6

Munktell offer a complete line of Glass fiber and Quartz fiber extraction thimbles for air pollution control. More information is found at page 26.

## Guide for Micro-Glass and Micro-Quartz Fibre products







Munktell offers a wide range of filter products for Industrial applications. Our product range includes plain, embossed and creped filter papers, filter discs as, filter boards as well as nonwoven belt filters. Most of the Industrial filters are available on request and please do not hesitate to contact us for an offer.

## Industrial Filter Papers

Grade	Basis Weight g/m <sup>2</sup>	Thickness mm	Finish	Retention rate µm	Filtration Properties	Filtration Velocity s/10 ml	Applications
3 W	65	0.15	Plain	10	Medium fast	15	Protection, Venting
51	65	0.14	Plain	12	Fast	13	Water, tinctures, spirits
3 m/N	65	0.12	Plain	4	Medium fast	30	Vaccum and pressure filtration
4 b	75	0.15	Plain	8	Medium fast	22	Spirits, tinctures, solutions
53	70	0.15	Embossed	7-10	Medium fast	18	General lab. work
49	78	0.17	Embossed	10-15	Fast	11	Salted solutions & sugar juice
94/N	100	0.22	Plain	7	Medium fast	25	Juices, essences, musts, wine
100/N	85	0.18	Plain	6	Medium fast	30	Belt filters for sugar industry
C 160	160	0.30	Plain	5	Medium fast	40	Hair tonic, spirits
57/N	190	0.40	Plain	7	Medium fast	32	Mild acids, hot alkaline sol.
69/K	160	0.42	Act. Carbon Paper	5	Medium to slow	65	Galvanic baths & clarification

## Industrial Filter Papers, Creped

Grade	Basis Weight g/m <sup>2</sup>	Thickness mm	Finish	Differential Pressure	Filtration Properties	Filtration Velocity s/10 ml	Applications
67/N	60	0.23	Creped	6	Medium fast	15	Musts, juices, edible oils
67/N	90	0.38	Creped	6.5	Medium fast	13	Wine, hair tonics
17	95	0.28	Creped	3	Fast	7	Tinctures, salted solution
37/N	135	0.50	Creped	1.9	Fast	5	Lacquers, dye emulsions, gelatine, fruit juices, transformer oil
6S/N	145	0.55	Creped	7	Medium fast	12	Pre-filter for transformer oils, technical oils and greases
39/N	180	0.70	Creped	7.5	Fast	5	Contaminated industrial liquids, lacquers and dye stuff

## Industrial Filter Papers, Filter Board

Grade	Basis Weight g/m <sup>2</sup>	Thickness mm	Finish	Retention rate µm	Capillary Rise mm/10min	Differential Pressure, mbar	Applications
C 250	250	0.48	Plain	5	n/a	25	Galvanic bathes
C 251	250	0.55	Plain	15	180	3.5	Technical oils, parafin
152	380	1.00	Plain	13.5	85	3	Transformer oils,
539	400	0.96	Plain	9.5	170	8	Engine fluids
C 450	450	0.95	Plain	5	110	25	Galvanic bathes
157	700	2.00	Plain	14	150	8	Impregnation

During almost 200 years, Munktell has been supplying papers within the laboratory and medical field. In the following pages you will find a selection of our products for medical applications as well as our newest product line of filter papers for neonatal screening – TFN.

## Sterilization paper

is a special wrapping paper of hydrophobic finish for use in steam, gas and gamma-ray sterilization. Its specific pore distribution and high air flow resistance ensure extremely safe storage properties. The material is available in creped surface finish. Produced in accordance with DIN EN 868-1 and DIN EN 868-2.

Regular supervision by an independent test institute guarantees a consistently high quality standard.

Grade: 363 – 60 g/m<sup>2</sup>

- Colours: white, green and blue
- for autoclaves (steam sterilization)
- for drying ovens up to 180°C

### Advantages:

Protects against contamination after sterilization.

When accurately wrapped and stored, the sterility of goods is guaranteed for six months.



Regularly controlled by an accredited, independent institute

Rolls			
Rolls	Width mm	Length m	Packing
2	500	100	carton
1	600	100	carton
1	750	100	carton
1	1000	100	carton

sheets		
Sheets	Size mm	Packing
500	400 x 400	carton
500	450 x 450	carton
500	500 x 500	carton
500	600 x 600	carton
250	750 x 750	carton
250	800 x 800	carton
250	900 x 900	carton
250	1000 x 1000	carton
125	1200 x 1200	carton

## Dental tray papers



For modern dentist practices. The ideal dental tray paper to protect your instruments. Also suitable as absorbent tray cover during sterilization.

- wetstrengthened instrument protection
- environmentally friendly
- hydrophobic or hydrophilic
- suitable for steam, gas, gamma and hot air sterilization

Available in creped and embossed finish.

Other sizes available on request.

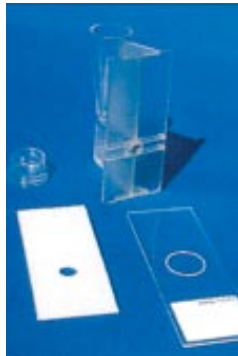
Grade	Basis Weight g/m <sup>2</sup>	Finish	Sizes mm	Sheets/Pack
327	55	creped, hydrophilic	180 x 280	250
1357	90	embossed, hydrophilic	180 x 275	250
363	60	creped, hydrophobic	180 x 280	250

## Cytocentrifugation

### Cyto-Strips made of Filter Board

for **single chambers** and **multiple chambers** available in different filter board grades, sizes and configurations

Grade	Basis Weight g/m <sup>2</sup>
151	460
C 450	450
1268	510



Single chamber



Multiple chamber



Centrifugal rotor



## Munktell TFN

### The new Specimen Collection Paper for Blood Sampling and New Born Screening

#### Application

Samples of blood and other body fluids are collected, transported, analysed and archived. TFN paper can be used for new born screening programmes, e.g. testing for phenylketonuria (PKU) and other genetic disorders. It meets the CLSI 2007 – Blood collection on filter paper for neonatal screening programmes, Approval Standard – Fifth Edition, CLSI publication no. LA4-A5.

#### Characteristics

TFN paper is manufactured from 100% pure cotton linters without wet-strength additives. The stability of the collected sample can be influenced by the composition of the paper. Munktell control the entire manufacturing process to ensure consistent compositions, uniform thickness, flow rate, purity and absorbency, guaranteeing high quality.

The CLSI (Clinical and Laboratory Standards Institute (formerly the National Committee for Clinical Laboratory Standards)) defines the critical parameters for blood absorbency, serum uptake and circle size for a specified volume of blood. TFN has been tested by an independent testing lab and the Center for Disease Control (CDC), Newborn Screening Quality Assurance Program. TFN conforms to this rigorous standard.

#### Working rule – CE mark

Grade TFN paper is classified as ‘sample vessel’ within the meaning of the Directive 98/79/EC, IVD Device. It require

the CE mark if sold within the European Union. All TFN specimen collection devices manufactured and printed by Munktell for neonatal testing in the EU are exposed printing quality control and carry the CE mark. Munktell will take over only responsibility for the quality or performance of TFN collection devices converted, printed or packaged by us. For our US customers we are happy to inform you that we have a FDA approval pending.

#### Examples of test cards\*

Grade and description	Dimension in mm	Packing Unit pcs
TFN Test Card with 5 circles	75 x 110	500
TFN Test Card with 5 circles and labelling field	76 x 108	500
TFN Test Card with 3 circles, encapsulated, sloped corner and labelling field	52,5 x 85	500

Other sizes, e.g. sheets are available on request, custom-made printing according customer preference

Munktell are able to offer a custom facility for producing bespoke cards for specific regions or applications. Call us today for technical advice and samples.

\* All TFN products available on request

## Grade Index – Ordering information

Type	Part number	Grade	Dimension in mm	Pack size	Page no.
Quantitative	119 101	388 Black dot circles	55	100	11, 15
Quantitative	119 102	388 Black dot circles	70	100	11, 15
Quantitative	119 103	388 Black dot circles	90	100	11, 15
Quantitative	119 104	388 Black dot circles	110	100	11, 15
Quantitative	119 105	388 Black dot circles	125	100	11, 15
Quantitative	119 106	388 Black dot circles	150	100	11, 15
Quantitative	119 107	388 Black dot circles	185	100	11, 15
Quantitative	119 108	388 Black dot circles	240	100	11, 15
Quantitative	119 201	389 White dot circles	12.7	1000	11, 15, 19
Quantitative	119 202	389 White dot circles	55	100	11, 15, 19
Quantitative	119 203	389 White dot circles	70	100	11, 15, 19
Quantitative	119 204	389 White dot circles	90	100	11, 15, 19
Quantitative	119 205	389 White dot circles	110	100	11, 15, 19
Quantitative	119 206	389 White dot circles	125	100	11, 15, 19
Quantitative	119 207	389 White dot circles	150	100	11, 15, 19
Quantitative	119 208	389 White dot circles	185	100	11, 15, 19
Quantitative	119 209	389 White dot circles	240	100	11, 15, 19
Quantitative	119 301	390 Green dot circles	55	100	11, 15, 19
Quantitative	119 302	390 Green dot circles	70	100	11, 15, 19
Quantitative	119 303	390 Green dot circles	90	100	11, 15, 19
Quantitative	119 304	390 Green dot circles	110	100	11, 15, 19
Quantitative	119 305	390 Green dot circles	125	100	11, 15, 19
Quantitative	119 306	390 Green dot circles	150	100	11, 15, 19
Quantitative	119 307	390 Green dot circles	185	100	11, 15, 19
Quantitative	119 308	390 Green dot circles	240	100	11, 15, 19
Quantitative	119 401	391 Blue dot circles	55	100	11, 15
Quantitative	119 402	391 Blue dot circles	70	100	11, 15
Quantitative	119 403	391 Blue dot circles	90	100	11, 15
Quantitative	119 404	391 Blue dot circles	110	100	11, 15
Quantitative	119 405	391 Blue dot circles	125	100	11, 15
Quantitative	119 406	391 Blue dot circles	150	100	11, 15
Quantitative	119 407	391 Blue dot circles	185	100	11, 15
Quantitative	119 408	391 Blue dot circles	240	100	11, 15
Quantitative	119 501	392 Red dot circles	55	100	11, 15
Quantitative	119 502	392 Red dot circles	70	100	11, 15
Quantitative	119 503	392 Red dot circles	90	100	11, 15
Quantitative	119 504	392 Red dot circles	110	100	11, 15
Quantitative	119 505	392 Red dot circles	125	100	11, 15
Quantitative	119 506	392 Red dot circles	150	100	11, 15
Quantitative	119 507	392 Red dot circles	185	100	11, 15
Quantitative	119 508	392 Red dot circles	240	100	11, 15
Quantitative	119 601	389 F Yellow dot circles	55	100	11, 15
Quantitative	119 602	389 F Yellow dot circles	70	100	11, 15
Quantitative	119 603	389 F Yellow dot circles	90	100	11, 15
Quantitative	119 604	389 F Yellow dot circles	110	100	11, 15
Quantitative	119 605	389 F Yellow dot circles	125	100	11, 15
Quantitative	119 606	389 F Yellow dot circles	150	100	11, 15
Quantitative	119 607	389 F Yellow dot circles	185	100	11, 15
Quantitative	119 608	389 F Yellow dot circles	240	100	11, 15
Quantitative	119 701	393 Purple dot circles	55	100	11, 15
Quantitative	119 702	393 Purple dot circles	70	100	11, 15
Quantitative	119 703	393 Purple dot circles	90	100	11, 15
Quantitative	119 704	393 Purple dot circles	110	100	11, 15
Quantitative	119 705	393 Purple dot circles	125	100	11, 15
Quantitative	119 706	393 Purple dot circles	150	100	11, 15
Quantitative	119 707	393 Purple dot circles	185	100	11, 15
Quantitative	119 708	393 Purple dot circles	240	100	11, 15
Quantitative	119 115	388 Black dot sheets	580 x 580	100	11, 15
Quantitative	119 214	389 White dot sheets	580 x 580	100	11, 15
Quantitative	119 215	389 White dot sheets	460 x 570	100	11, 15
Quantitative	119 315	390 Green dot sheets	580 x 580	100	11, 15
Quantitative	119 415	391 Blue dot sheets	580 x 580	100	11, 15
Quantitative	119 515	392 Red dot sheets	580 x 580	100	11, 15
Quantitative	119 715	393 Purple dot sheets	580 x 580	100	11, 15

Type	Part number	Grade	Dimension in mm	Pack size	Page no.
Quantitative	119 714	393 Purple dot sheets	460 x 570	100	11, 15
Qualitative	125 218	Munktell no. 1	32	100	12-13, 15
Qualitative	125 219	Munktell no. 1	42.5	100	12-13, 15
Qualitative	125 220	Munktell no. 1	47	100	12-13, 15
Qualitative	125 201	Munktell no. 1	55	100	12-13, 15
Qualitative	125 202	Munktell no. 1	70	100	12-13, 15
Qualitative	125 203	Munktell no. 1	90	100	12-13, 15
Qualitative	125 204	Munktell no. 1	110	100	12-13, 15
Qualitative	125 205	Munktell no. 1	125	100	12-13, 15
Qualitative	125 206	Munktell no. 1	150	100	12-13, 15
Qualitative	125 207	Munktell no. 1	185	100	12-13, 15
Qualitative	125 208	Munktell no. 1	240	100	12-13, 15
Qualitative	125 209	Munktell no. 1	270	100	12-13, 15
Qualitative	125 210	Munktell no. 1	320	100	12-13, 15
Qualitative	125 221	Munktell no. 1	500	100	12-13, 15
Qualitative	125 213	Munktell no. 1	460 x 570	100	12-13, 15
Qualitative	125 222	Munktell no. 1	460 x 570	500	12-13, 15
Qualitative, Folded	135 201	Munktell no. 1, Folded	110	100	12-13, 15
Qualitative, Folded	135 202	Munktell no. 1, Folded	125	100	12-13, 15
Qualitative, Folded	135 203	Munktell no. 1, Folded	150	100	12-13, 15
Qualitative, Folded	135 204	Munktell no. 1, Folded	185	100	12-13, 15
Qualitative, Folded	135 205	Munktell no. 1, Folded	200	100	12-13, 15
Qualitative, Folded	135 206	Munktell no. 1, Folded	240	100	12-13, 15
Qualitative	125 315	Munktell no. 2	32	100	12-13, 15, 19
Qualitative	125 316	Munktell no. 2	42.5	100	12-13, 15, 19
Qualitative	125 301	Munktell no. 2	55	100	12-13, 15, 19
Qualitative	125 302	Munktell no. 2	70	100	12-13, 15, 19
Qualitative	125 303	Munktell no. 2	90	100	12-13, 15, 19
Qualitative	125 304	Munktell no. 2	110	100	12-13, 15, 19
Qualitative	125 305	Munktell no. 2	125	100	12-13, 15, 19
Qualitative	125 306	Munktell no. 2	150	100	12-13, 15, 19
Qualitative	125 307	Munktell no. 2	185	100	12-13, 15, 19
Qualitative	125 308	Munktell no. 2	240	100	12-13, 15, 19
Qualitative	125 309	Munktell no. 2	270	100	12-13, 15, 19
Qualitative	125 310	Munktell no. 2	320	100	12-13, 15, 19
Qualitative	125 317	Munktell no. 2	385	100	12-13, 15, 19
Qualitative	125 312	Munktell no. 2	460 x 570	100	12-13, 15, 19
Qualitative Folded	135 301	Munktell no. 2, Folded	110	100	12-13, 15, 19
Qualitative Folded	135 302	Munktell no. 2, Folded	125	100	12-13, 15, 19
Qualitative Folded	135 303	Munktell no. 2, Folded	150	100	12-13, 15, 19
Qualitative Folded	135 304	Munktell no. 2, Folded	185	100	12-13, 15, 19
Qualitative Folded	135 305	Munktell no. 2, Folded	200	100	12-13, 15, 19
Qualitative Folded	135 306	Munktell no. 2, Folded	240	100	12-13, 15, 19
Qualitative Folded	135 307	Munktell no. 2, Folded	270	100	12-13, 15, 19
Qualitative Folded	135 308	Munktell no. 2, Folded	320	100	12-13, 15, 19
Qualitative Folded	135 309	Munktell no. 2, Folded	400	100	12-13, 15, 19
Qualitative Folded	135 310	Munktell no. 2, Folded	500	100	12-13, 15, 19
Qualitative	120 200	1288 circles	42.5	100	12-13, 15
Qualitative	120 201	1288 circles	55	100	12-13, 15
Qualitative	120 202	1288 circles	70	100	12-13, 15
Qualitative	120 203	1288 circles	90	100	12-13, 15
Qualitative	120 204	1288 circles	110	100	12-13, 15
Qualitative	120 205	1288 circles	125	100	12-13, 15
Qualitative	120 206	1288 circles	150	100	12-13, 15
Qualitative	120 207	1288 circles	185	100	12-13, 15
Qualitative	120 208	1288 circles	240	100	12-13, 15
Qualitative	120 209	1288 circles	320	100	12-13, 15
Qualitative	120 210	1288 circles	400	100	12-13, 15
Qualitative	120 301	1289 circles	55	100	12-13, 15, 23
Qualitative	120 302	1289 circles	70	100	12-13, 15, 23
Qualitative	120 303	1289 circles	90	100	12-13, 15, 23
Qualitative	120 304	1289 circles	110	100	12-13, 15, 23
Qualitative	120 305	1289 circles	125	100	12-13, 15, 23
Qualitative	120 306	1289 circles	150	100	12-13, 15, 23
Qualitative	120 307	1289 circles	185	100	12-13, 15, 23
Qualitative	120 308	1289 circles	240	100	12-13, 15, 23
Qualitative	129 501	1290 circles	55	100	12-13, 15
Qualitative	129 502	1290 circles	70	100	12-13, 15



Type	Part number	Grade	Dimension in mm	Pack size	Page no.
Qualitative	129 503	1290 circles	90	100	12-13, 15
Qualitative	129 504	1290 circles	110	100	12-13, 15
Qualitative	129 505	1290 circles	125	100	12-13, 15
Qualitative	129 506	1290 circles	150	100	12-13, 15
Qualitative	129 507	1290 circles	185	100	12-13, 15
Qualitative	129 508	1290 circles	240	100	12-13, 15
Qualitative	129 601	1291 circles	55	100	12-13, 15
Qualitative	129 602	1291 circles	70	100	12-13, 15
Qualitative	129 603	1291 circles	90	100	12-13, 15
Qualitative	129 604	1291 circles	110	100	12-13, 15
Qualitative	129 605	1291 circles	125	100	12-13, 15
Qualitative	129 606	1291 circles	150	100	12-13, 15
Qualitative	129 607	1291 circles	185	100	12-13, 15
Qualitative	129 608	1291 circles	240	100	12-13, 15
Qualitative	129 609	1291 circles	320	100	12-13, 15
Qualitative	129 701	1292 circles	55	100	12-13, 15, 23
Qualitative	129 702	1292 circles	70	100	12-13, 15, 23
Qualitative	129 703	1292 circles	90	100	12-13, 15, 23
Qualitative	129 704	1292 circles	110	100	12-13, 15, 23
Qualitative	129 705	1292 circles	125	100	12-13, 15, 23
Qualitative	129 706	1292 circles	150	100	12-13, 15, 23
Qualitative	129 707	1292 circles	185	100	12-13, 15, 23
Qualitative	129 708	1292 circles	240	100	12-13, 15, 23
Qualitative	129 709	1292 circles	270	100	12-13, 15, 23
Qualitative	129 710	1292 circles	320	100	12-13, 15, 23
Qualitative	129 810	292 circles	25	100	12-13, 15, 19
Qualitative	129 801	292 circles	55	100	12-13, 15, 19
Qualitative	129 802	292 circles	70	100	12-13, 15, 19
Qualitative	129 803	292 circles	90	100	12-13, 15, 19
Qualitative	129 804	292 circles	110	100	12-13, 15, 19
Qualitative	129 805	292 circles	125	100	12-13, 15, 19
Qualitative	129 806	292 circles	150	100	12-13, 15, 19
Qualitative	129 807	292 circles	185	100	12-13, 15, 19
Qualitative	129 808	292 circles	240	100	12-13, 15, 19
Qualitative	129 809	292 circles	320	100	12-13, 15, 19
Qualitative	129 900	1288 sheets	580 x 580	100	12-13, 15
Qualitative	129 901	1288 sheets	460 x 570	100	12-13, 15
Qualitative	129 910	1289 sheets	580 x 580	100	12-13, 15
Qualitative	129 920	1290 sheets	580 x 580	100	12-13, 15
Qualitative	129 930	1291 sheets	580 x 580	100	12-13, 15
Qualitative	129 940	1292 sheets	580 x 580	100	12-13, 15
Qualitative	129 941	292 sheets	460 x 570	100	12-13, 15
General purpose	211 023	1001, circles	42.5	100	14-15
General purpose	211 001	1001, circles	55	100	14-15
General purpose	211 002	1001, circles	70	100	14-15
General purpose	211 003	1001, circles	90	100	14-15
General purpose	211 004	1001, circles	110	100	14-15
General purpose	211 005	1001, circles	125	100	14-15
General purpose	211 006	1001, circles	150	100	14-15
General purpose	211 007	1001, circles	185	100	14-15
General purpose	211 008	1001, circles	240	100	14-15
General purpose	211 024	1001, circles	270	100	14-15
General purpose	211 009	1001, circles	320	100	14-15
General purpose	211 025	1001, circles	400	100	14-15
General purpose	211 026	1001, circles	460 x 570	100	14-15
General purpose	211 021	1001, sheets	480 x 480	100	14-15
General purpose	211 022	1001, sheets	480 x 480	500	14-15
General purpose	212 032	1002, circles	42.5	100	14-15
General purpose	212 001	1002, circles	55	100	14-15
General purpose	212 002	1002, circles	70	100	14-15
General purpose	212 003	1002, circles	90	100	14-15
General purpose	212 004	1002, circles	110	100	14-15
General purpose	212 005	1002, circles	125	100	14-15
General purpose	212 006	1002, circles	150	100	14-15
General purpose	212 007	1002, circles	185	100	14-15
General purpose	212 008	1002, circles	240	100	14-15
General purpose	212 033	1002, circles	270	100	14-15
General purpose	212 009	1002, circles	320	100	14-15

Type	Part number	Grade	Dimension in mm	Pack size	Page no.
General purpose	212 034	1002, circles	400	100	14-15
General purpose	212 030	1002, sheets	460 x 570	100	14-15
General purpose	212 021	1002, sheets	480 x 480	100	14-15
General purpose	212 022	1002, sheets	480 x 480	500	14-15
General purpose	213 035	1003, circles	42.5	100	14-15
General purpose	213 001	1003, circles	55	100	14-15
General purpose	213 002	1003, circles	70	100	14-15
General purpose	213 003	1003, circles	90	100	14-15
General purpose	213 004	1003, circles	110	100	14-15
General purpose	213 005	1003, circles	125	100	14-15
General purpose	213 006	1003, circles	150	100	14-15
General purpose	213 007	1003, circles	185	100	14-15
General purpose	213 008	1003, circles	240	100	14-15
General purpose	213 036	1003, circles	270	100	14-15
General purpose	213 009	1003, circles	320	100	14-15
General purpose	213 037	1003, circles	400	100	14-15
General purpose	213 038	1003, circles	460 x 570	100	14-15
General purpose	213 021	1003, sheets	480 x 480	100	14-15
General purpose	213 022	1003, sheets	480 x 480	500	14-15
Chrom.&Blotting	160 550	FN 3 sheets	200 x 200	100	16
Chrom.&Blotting	160 500	FN 2 sheets	580 x 600	100	16
Chrom.&Blotting	160 551	FN 3 sheets	100 x 300	100	16
Chrom.&Blotting	160 552	FN 3 sheets	460 x 570	100	16
Chrom.&Blotting	160 553	FN 3 sheets	580 x 600	100	16
Chrom.&Blotting	160 554	FN 3 sheets	580 x 680	100	16
Chrom.&Blotting	160 600	FN 4 sheets	460 x 570	100	16
Chrom.&Blotting	160 601	FN 4 sheets	580 x 600	100	16
Chrom.&Blotting	160 650	FN 5 sheets	580 x 600	100	16
Chrom.&Blotting	160 700	FN 6 sheets	580 x 600	100	16
Chrom.&Blotting	160 750	FN 7 sheets	460 x 570	50	16
Chrom.&Blotting	160 751	FN 7 sheets	580 x 600	50	16
Chrom.&Blotting	160 752	FN 7a sheets	460 x 570	50	16
Chrom.&Blotting	160 753	FN 7a sheets	580 x 600	50	16
Chrom.&Blotting	160 800	FN 8 sheets	580 x 600	50	16
Chrom.&Blotting	160 801	FN 8 sheets	300 x 600	100	16
Chrom.&Blotting	160 820	BF 1 sheets	580 x 600	100	17
Chrom.&Blotting	160 850	BF 2 sheets	200 x 200	100	17
Chrom.&Blotting	160 851	BF 2 sheets	300 x 600	100	17
Chrom.&Blotting	160 852	BF 2 sheets	460 x 570	100	17
Chrom.&Blotting	160 853	BF 2 sheets	580 x 600	100	17
Chrom.&Blotting	160 930	BF 3 urine collection card, unprinted	50 x 70		17
Chrom.&Blotting	160 931	BF 3 urine collection card, unprinted	70 x 120		17
Chrom.&Blotting	160 932	BF 3 urine collection card, unprinted	210 x 297 (A4)	100	17
Chrom.&Blotting	160 900	BF 3 sheets	300 x 600	50	17
Chrom.&Blotting	160 901	BF 3 sheets	460 x 570	50	17
Chrom.&Blotting	160 902	BF 3 sheets	580 x 600	50	17
Chrom.&Blotting	160 950	BF 4 sheets	150 x 150	25	17
Chrom.&Blotting	160 951	BF 4 sheets	580 x 580	25	17
Chrom.&Blotting	160 952	BF 4 sheets	580 x 600	25	17
Chrom.&Blotting	170 050	FN 30 sheets	470 x 580	100	17
Chrom.&Blotting	170 100	FN 100 sheets	102 x 133	100	16,17
Chrom.&Blotting	170 101	FN 100 sheets	152 x 203	100	16,17
Chrom.&Blotting	170 102	FN 100 sheets	110 x 140	100	16,17
Chrom.&Blotting	170 103	FN 100 sheets	120 x 140	100	16,17
Chrom.&Blotting	170 104	FN 100 sheets	150 x 170		16,17
Chrom.&Blotting	170 105	FN 100 sheets	150 x 200		16,17
Chrom.&Blotting	170 106	FN 100 sheets	180 x 340		16,17
Chrom.&Blotting	170 107	FN 100 sheets	200 x 200	50	16,17
Chrom.&Blotting	170 108	FN 100 sheets	203 x 254		16,17
Chrom.&Blotting	170 109	FN 100 sheets	260 x 410		16,17
Chrom.&Blotting	170 110	FN 100 sheets	315 x 355	100	16,17
Chrom.&Blotting	170 111	FN 100 sheets	350 x 430		16,17
Chrom.&Blotting	170 112	FN 100 sheets	350 x 450		16,17
Chrom.&Blotting	170 113	FN 100 sheets	460 x 570	50	16,17
Chrom.&Blotting	170 114	FN 100 sheets	460 x 570	100	16,17
Chrom.&Blotting	170 115	FN 100 sheets	580 x 600	50	16,17
Chrom.&Blotting	170 116	FN 100 sheets	580 x 680	50	16,17
Chrom.&Blotting	170 150	FN 100 Rolls	20 mm x 100 m		16,17

Type	Part number	Grade	Dimension in mm	Pack size	Page no.
Chrom.&Blotting	170 151	FN 100 Rolls	75 mm x 100 m		16,17
Chrom.&Blotting	170 152	FN 100 Rolls	100 mm x 100 m		16,17
Chrom.&Blotting	170 153	FN 100 Rolls	150 mm x 100 m		16,17
Chrom.&Blotting	170 154	FN 100 Rolls	190 mm x 100 m		16,17
Chrom.&Blotting	170 155	FN 100 Rolls	230 mm x 100 m		16,17
Chrom.&Blotting	170 156	FN 100 Rolls	270 mm x 100 m		16,17
Chrom.&Blotting	140 006	1600	125 x 125	200	17
Chrom.&Blotting	140 010	1600	145 x 230	200	17
Chrom.&Blotting	140 011	1600	150 x 150	200	17
Chrom.&Blotting	140 013	1600	165 x 165	200	17
Chrom.&Blotting	140 015	1600	170 x 170	200	17
Chrom.&Blotting	140 016	1600	175 x 175	200	17
Chrom.&Blotting	140 019	1600	200 x 200	200	17
Chrom.&Blotting	140 022	1600	210 x 297	200	17
Chrom.&Blotting	140 036	1600	480x480	100	17
Chrom.&Blotting	140 037	1600	480 x 480	200	17
Chrom.&Blotting	140 075	1600	580 x 600	100	17
Chrom.&Blotting	141 001	1600	120	200	17
Chrom.&Blotting	141 002	1600	125	200	17
Chrom.&Blotting	141 003	1600	150	200	17
Chrom.&Blotting	141 005	1600	170	200	17
Chrom.&Blotting	141 006	1600	185	200	17
Chrom.&Blotting	141 007	1600	220	200	17
Chrom.&Blotting	141 008	1600	230	200	17
Chrom.&Blotting	140 101	64 sheets	580 x 580	100	16
Chrom.&Blotting	140 102	64 a sheets	580 x 580	100	16
Indicator paper	180 925	pH-paper reels	pH 1 - 11	10 reel	18
Indicator paper	180 930	pH-paper reels	pH 1 - 14	1 reel	18
Indicator paper	180 935	pH-paper reels refill pack	pH 1 - 14	3 reels	18
Indicator paper	On request	pH-paper, strips	0.2 and 0.3 interval	200	18
Indicator paper	180 001	Congo red	9 x 65	100	18
Indicator paper	180 002	Phenolphthalein	9 x 65	100	18
Indicator paper	180 003	Lithmus paper blue	9 x 65	100	18
Indicator paper	180 004	Lithmus paper red	9 x 65	100	18
Seed testing/Soil analysis	131 901	131 Folded filter	125	100	19
Seed testing/Soil analysis	131 902	131 Folded filter	150	100	19
Seed testing/Soil analysis	131 903	131 Folded filter	185	100	19
Seed testing/Soil analysis	131 751	132 Folded filter	125	100	19
Seed testing/Soil analysis	131 752	132 Folded filter	150	100	19
Seed testing/Soil analysis	131 753	132 Folded filter	185	100	19
Seed testing/Soil analysis	260 004	1700	85	500	19-20
Seed testing/Soil analysis	260 005	1700	88	500	19-20
Seed testing/Soil analysis	260 006	1700	95	500	19-20
Seed testing/Soil analysis	260 009	1700	75	500	19-20
Seed testing/Soil analysis	260 010	1700	18 x 320	1000	19-20
Seed testing/Soil analysis	260 011	1700	480 x 480	250	19-20
Seed testing/Soil analysis	261 001	1701	75	500	19-20
Seed testing/Soil analysis	261 004	1701	85	500	19-20
Seed testing/Soil analysis	261 005	1701	88	500	19-20
Seed testing/Soil analysis	261 007	1701	95	500	19-20
Seed testing/Soil analysis	261 008	1701	162	500	19-20
Seed testing/Soil analysis	261 009	1701	160	500	19-20
Seed testing/Soil analysis	261 014	1701	220 x 220	250	19-20
Seed testing/Soil analysis	262 002	1731	130	200	19-20
Seed testing/Soil analysis	262 003	1731	150	200	19-20
Seed testing/Soil analysis	262 004	1731	162	200	19-20
Seed testing/Soil analysis	262 005	1731	170	200	19-20
Seed testing/Soil analysis	263 001	1750	220 x 400	500	19-20
Seed testing/Soil analysis	264 001	1755	190 x 400	500	19-20
Seed testing/Soil analysis	264 101	1765	110 x 20/8 each	1000	20
Surface protection paper	244 400	LabSorb, sheets	457 x 559	50	21
Surface protection paper	244 401	LabSorb, roll	400 mm x 50 m	1	21
Surface protection paper	244 402	LabSorb, roll	460 mm x 50 m	1	21
Surface protection paper	244 403	LabSorb, roll	920 mm x 50 m	1	21
Surface protection paper	244 404	LabSorb, sheets	460 x 570	50	21
Surface protection paper	244 405	LabSorb, roll	400 mm x 100 m	1	21
Surface protection paper	244 406	LabSorb, roll	600 mm x 50 m	1	21
Surface protection paper	244 407	LabSorb, roll	600 mm x 100 m	1	21

Type	Part number	Grade	Dimension in mm	Pack size	Page no.
Surface protection paper	244 450	LabSorb Ultra, sheets	500 x 600 mm	50	21
Surface protection paper	244 451	LabSorb Ultra, roll	600 mm x 50 m	1	21
Extraction thimbles	152 201	ET/401 - Cellulose	22 x 55	25	25-26
Extraction thimbles	152 202	ET/401 - Cellulose	22 x 60	25	25-26
Extraction thimbles	152 200	ET/401 - Cellulose	22 x 65	25	25-26
Extraction thimbles	152 203	ET/401 - Cellulose	22 x 80	25	25-26
Extraction thimbles	152 204	ET/401 - Cellulose	22 x 85	25	25-26
Extraction thimbles	152 205	ET/401 - Cellulose	22 x 100	25	25-26
Extraction thimbles	152 206	ET/401 - Cellulose	22 x 120	25	25-26
Extraction thimbles	152 207	ET/401 - Cellulose	25 x 60	25	25-26
Extraction thimbles	152 208	ET/401 - Cellulose	25 x 80	25	25-26
Extraction thimbles	152 209	ET/401 - Cellulose	25 x 100	25	25-26
Extraction thimbles	152 210	ET/401 - Cellulose	25 x 150	25	25-26
Extraction thimbles	152 211	ET/401 - Cellulose	26 x 60	25	25-26
Extraction thimbles	152 213	ET/401 - Cellulose	30 x 60	25	25-26
Extraction thimbles	152 214	ET/401 - Cellulose	30 x 80	25	25-26
Extraction thimbles	152 215	ET/401 - Cellulose	30 x 90	25	25-26
Extraction thimbles	152 216	ET/401 - Cellulose	30 x 100	25	25-26
Extraction thimbles	152 217	ET/401 - Cellulose	30 x 150	25	25-26
Extraction thimbles	152 218	ET/401 - Cellulose	33 x 80	25	25-26
Extraction thimbles	152 219	ET/401 - Cellulose	33 x 94	25	25-26
Extraction thimbles	152 220	ET/401 - Cellulose	33 x 100	25	25-26
Extraction thimbles	152 221	ET/401 - Cellulose	33 x 118	25	25-26
Extraction thimbles	152 222	ET/401 - Cellulose	33 x 150	25	25-26
Extraction thimbles	152 223	ET/401 - Cellulose	35 x 150	25	25-26
Extraction thimbles	152 237	ET/401 - Cellulose	43 x 123	25	25-26
Extraction thimbles	152 238	ET/401 - Cellulose	60 x 180	25	25-26
Extraction thimbles	411 001	ET/MG 160 - Glass fiber	10 x 50	25	25-26
Extraction thimbles	411 002	ET/MG 160 - Glass fiber	22 x 80	25	25-26
Extraction thimbles	411 003	ET/MG 160 - Glass fiber	25 x 100	25	25-26
Extraction thimbles	411 004	ET/MG 160 - Glass fiber	26 x 60	25	25-26
Extraction thimbles	411 005	ET/MG 160 - Glass fiber	30 x 110	25	25-26
Extraction thimbles	411 006	ET/MG 160 - Glass fiber	26 x 80	25	25-26
Extraction thimbles	411 007	ET/MG 160 - Glass fiber	35 x 90	25	25-26
Extraction thimbles	411 008	ET/MG 160 - Glass fiber	35 x 145	25	25-26
Extraction thimbles	411 009	ET/MG 160 - Glass fiber	30 x 77	25	25-26
Extraction thimbles	411 010	ET/MG 160 - Glass fiber	30 x 95	25	25-26
Extraction thimbles	411 011	ET/MG 160 - Glass fiber	33 x 80	25	25-26
Extraction thimbles	411 012	ET/MG 160 - Glass fiber	33 x 94	25	25-26
Extraction thimbles	411 013	ET/MG 160 - Glass fiber	30 x 70	25	25-26
Extraction thimbles	411 014	ET/MG 160 - Glass fiber	29 x 110	25	25-26
Extraction thimbles	411 015	ET/MG 160 - Glass fiber	35 x 150	25	25-26
Extraction thimbles	411 016	ET/MG 160 - Glass fiber	43 x 123	25	25-26
Extraction thimbles	411 017	ET/MG 160 - Glass fiber	35 x 140	25	25-26
Extraction thimbles	411 018	ET/MG 160 - Glass fiber	53 x 145	25	25-26
Extraction thimbles	411 019	ET/MG 160 - Glass fiber	26 x 72	25	25-26
Extraction thimbles	411 023	ET/MG 160 - Glass fiber	30 x 75	25	25-26
Extraction thimbles	411 024	ET/MG 160 - Glass fiber	35 x 100	25	25-26
Extraction thimbles	411 025	ET/MG 160 - Glass fiber	19 x 90	25	25-26
Extraction thimbles	411 026	ET/MG 160 - Glass fiber	30 x 100	25	25-26
Extraction thimbles	411 027	ET/MG 160 - Glass fiber	25 x 80	25	25-26
Extraction thimbles	411 028	ET/MG 160 - Glass fiber	25 x 90	25	25-26
Extraction thimbles	411 030	ET/MG 160 - Glass fiber	28 x 60	25	25-26
Extraction thimbles	411 031	ET/MG 160 - Glass fiber	26 x 65	25	25-26
Extraction thimbles	411 035	ET/MG 160 - Glass fiber	25 x 60	25	25-26
Extraction thimbles	421 001	ET/MK 360 - Quartz fiber	30 x 77	25	25-26
Extraction thimbles	421 002	ET/MK 360 - Quartz fiber	22 x 65	25	25-26
Extraction thimbles	421 003	ET/MK 360 - Quartz fiber	35 x 150	25	25-26
Extraction thimbles	421 004	ET/MK 360 - Quartz fiber	43 x 123	25	25-26
Extraction thimbles	421 005	ET/MK 360 - Quartz fiber	26 x 60	25	25-26
Extraction thimbles	421 006	ET/MK 360 - Quartz fiber	30 x 110	25	25-26
Extraction thimbles	421 007	ET/MK 360 - Quartz fiber	22 x 62	25	25-26
Extraction thimbles	421 009	ET/MK 360 - Quartz fiber	25 x 100	25	25-26
Extraction thimbles	421 010	ET/MK 360 - Quartz fiber	25 x 70	25	25-26
Extraction thimbles	421 011	ET/MK 360 - Quartz fiber	29 x 110	25	25-26
Extraction thimbles	421 012	ET/MK 360 - Quartz fiber	53 x 145	25	25-26
Extraction thimbles	421 015	ET/MK 360 - Quartz fiber	34 x 150	25	25-26
Extraction thimbles	421 017	ET/MK 360 - Quartz fiber	35 x 90	25	25-26

Type	Part number	Grade	Dimension in mm	Pack size	Page no.
Extraction thimbles	421 019	ET/MK 360 - Quartz fiber	35 x 75	25	25-26
Extraction thimbles	421 020	ET/MK 360 - Quartz fiber	30 x 80	25	25-26
Extraction thimbles	421 021	ET/MK 360 - Quartz fiber	30 x 100	25	25-26
Extraction thimbles	421 022	ET/MK 360 - Quartz fiber	26 x 100	25	25-26
Extraction thimbles	421 028	ET/MK 360 - Quartz fiber	30 x 150	25	25-26
Extraction thimbles	421 029	ET/MK 360 - Quartz fiber	25 x 65	25	25-26
Extraction thimbles	421 031	ET/MK 360 - Quartz fiber	25 x 80	25	25-26
Extraction thimbles	421 034	ET/MK 360 - Quartz fiber	19 x 90	25	25-26
Extraction thimbles	421 035	ET/MK 360 - Quartz fiber	28 x 100	25	25-26
Extraction thimbles	421 036	ET/MK 360 - Quartz fiber	27 x 70	25	25-26
Extraction thimbles	421 037	ET/MK 360 - Quartz fiber	28 x 60	25	25-26
Extraction thimbles	421 038	ET/MK 360 - Quartz fiber	22 x 70	25	25-26
Extraction thimbles	421 039	ET/MK 360 - Quartz fiber	22 x 80	25	25-26
Extraction thimbles	421 042	ET/MK 360 - Quartz fiber	16 x 50	25	25-26
Extraction thimbles	421 043	ET/MK 360 - Quartz fiber	40 x 150	25	25-26
Extraction thimbles	421 044	ET/MK 360 - Quartz fiber	30 x 70	25	25-26
Glass fiber	413 021	MGA Glass micro fiber circles	21		30, 33
Glass fiber	413 001	MGA Glass micro fiber circles	24		30, 33
Glass fiber	413 014	MGA Glass micro fiber circles	25	100	30, 33
Glass fiber	413 019	MGA Glass micro fiber circles	37		30, 33
Glass fiber	413 022	MGA Glass micro fiber circles	42.5		30, 33
Glass fiber	413 003	MGA Glass micro fiber circles	47	100	30, 33
Glass fiber	413 004	MGA Glass micro fiber circles	50	100	30, 33
Glass fiber	413 005	MGA Glass micro fiber circles	55	100	30, 33
Glass fiber	413 006	MGA Glass micro fiber circles	70	100	30, 33
Glass fiber	413 007	MGA Glass micro fiber circles	90	100	30, 33
Glass fiber	413 011	MGA Glass micro fiber circles	100	100	30, 33
Glass fiber	413 010	MGA Glass micro fiber circles	110	100	30, 33
Glass fiber	413 016	MGA Glass micro fiber circles	125	100	30, 33
Glass fiber	413 008	MGA Glass micro fiber circles	150	100	30, 33
Glass fiber	413 017	MGA Glass micro fiber circles	185	100	30, 33
Glass fiber	413 009	MGA Glass micro fiber circles	240	50	30, 33
Glass fiber	414 038	MGB Glass micro fiber circles	21	50	30, 33
Glass fiber	414 001	MGB Glass micro fiber circles	24		30, 33
Glass fiber	414 018	MGB Glass micro fiber circles	25	50	30, 33
Glass fiber	414 039	MGB Glass micro fiber circles	42.5		30, 33
Glass fiber	414 003	MGB Glass micro fiber circles	47	50	30, 33
Glass fiber	414 034	MGB Glass micro fiber circles	50	50	30, 33
Glass fiber	414 005	MGB Glass micro fiber circles	55	50	30, 33
Glass fiber	414 006	MGB Glass micro fiber circles	70	50	30, 33
Glass fiber	414 007	MGB Glass micro fiber circles	90	50	30, 33
Glass fiber	414 025	MGB Glass micro fiber circles	100	50	30, 33
Glass fiber	414 002	MGB Glass micro fiber circles	110	50	30, 33
Glass fiber	414 004	MGB Glass micro fiber circles	125	50	30, 33
Glass fiber	414 008	MGB Glass micro fiber circles	150	50	30, 33
Glass fiber	414 040	MGB Glass micro fiber circles	185	50	30, 33
Glass fiber	414 009	MGB Glass micro fiber circles	240	25	30, 33
Glass fiber	415 027	MGC Glass micro fiber circles	21	100	30, 33
Glass fiber	415 001	MGC Glass micro fiber circles	24	100	30, 33
Glass fiber	415 023	MGC Glass micro fiber circles	25	100	30, 33
Glass fiber	415 017	MGC Glass micro fiber circles	37	100	30, 33
Glass fiber	415 024	MGC Glass micro fiber circles	42.5	100	30, 33
Glass fiber	415 003	MGC Glass micro fiber circles	47	100	30, 33
Glass fiber	415 004	MGC Glass micro fiber circles	50	100	30, 33
Glass fiber	415 005	MGC Glass micro fiber circles	55	100	30, 33
Glass fiber	415 006	MGC Glass micro fiber circles	70	100	30, 33
Glass fiber	415 007	MGC Glass micro fiber circles	90	100	30, 33
Glass fiber	415 025	MGC Glass micro fiber circles	100	100	30, 33
Glass fiber	415 009	MGC Glass micro fiber circles	110	100	30, 33
Glass fiber	415 018	MGC Glass micro fiber circles	125	100	30, 33
Glass fiber	415 016	MGC Glass micro fiber circles	150	100	30, 33
Glass fiber	415 026	MGC Glass micro fiber circles	185	100	30, 33
Glass fiber	415 002	MGC Glass micro fiber circles	240	50	30, 33
Glass fiber	419 025	MGD Glass micro fiber circles	10	50	30, 33
Glass fiber	419 026	MGD Glass micro fiber circles	21	50	30, 33
Glass fiber	419 018	MGD Glass micro fiber circles	24	50	30, 33
Glass fiber	419 003	MGD Glass micro fiber circles	25	50	30, 33
Glass fiber	419 027	MGD Glass micro fiber circles	42.5	50	30, 33



Type	Part number	Grade	Dimension in mm	Pack size	Page no.
Glass fiber	419 008	MGD Glass micro fiber circles	47	50	30, 33
Glass fiber	419 009	MGD Glass micro fiber circles	50	50	30, 33
Glass fiber	419 010	MGD Glass micro fiber circles	55	50	30, 33
Glass fiber	419 019	MGD Glass micro fiber circles	70	50	30, 33
Glass fiber	419 012	MGD Glass micro fiber circles	90	50	30, 33
Glass fiber	419 028	MGD Glass micro fiber circles	100	50	30, 33
Glass fiber	419 021	MGD Glass micro fiber circles	110	50	30, 33
Glass fiber	419 031	MGD Glass micro fiber circles	125	50	30, 33
Glass fiber	419 020	MGD Glass micro fiber circles	150	50	30, 33
Glass fiber	419 029	MGD Glass micro fiber circles	185	50	30, 33
Glass fiber	419 030	MGD Glass micro fiber circles	240	25	30, 33
Glass fiber	417 028	MGF Glass micro fiber circles	21	100	30, 33
Glass fiber	417 029	MGF Glass micro fiber circles	24	100	30, 33
Glass fiber	417 002	MGF Glass micro fiber circles	25	100	30, 33
Glass fiber	417 022	MGF Glass micro fiber circles	42.5	100	30, 33
Glass fiber	417 005	MGF Glass micro fiber circles	47	100	30, 33
Glass fiber	417 006	MGF Glass micro fiber circles	50	100	30, 33
Glass fiber	417 007	MGF Glass micro fiber circles	55	100	30, 33
Glass fiber	417 008	MGF Glass micro fiber circles	70	100	30, 33
Glass fiber	417 009	MGF Glass micro fiber circles	90	100	30, 33
Glass fiber	417 023	MGF Glass micro fiber circles	100	100	30, 33
Glass fiber	417 010	MGF Glass micro fiber circles	110	100	30, 33
Glass fiber	417 012	MGF Glass micro fiber circles	125	100	30, 33
Glass fiber	417 024	MGF Glass micro fiber circles	142	100	30, 33
Glass fiber	417 013	MGF Glass micro fiber circles	150	100	30, 33
Glass fiber	417 025	MGF Glass micro fiber circles	185	100	30, 33
Glass fiber	417 026	MGF Glass micro fiber circles	240	50	30, 33
Glass fiber	417 027	MGF Glass micro fiber circles	257	50	30, 33
Glass fiber	416 025	MGA Micro glass fibre, sheets	460 x 570	100	30, 33
Glass fiber	416 020	MGA Micro glass fibre, sheets	580 x 580	100	30, 33
Glass fiber	416 021	MGB Micro glass fibre, sheets	580 x 580	100	30, 33
Glass fiber	416 026	MGC Micro glass fibre, sheets	460 x 570	100	30, 33
Glass fiber	416 022	MGC Micro glass fibre, sheets	580 x 580	100	30, 33
Glass fiber	416 023	MGD Micro glass fibre, sheets	580 x 580	100	30, 33
Glass fiber	416 024	MGF Micro glass fibre, sheets	580 x 580	100	30, 33
Glass fiber	417 501-50	MG 550-HA	on request	n/a	31,33
Glass fiber	437 001-3	Susp 70	on request	n/a	31
Quartz fiber	420 036	MK 360, circles	380 x 620	25	32-33
Quartz fiber	420 031	MK 360, circles	20	25	32-33
Quartz fiber	420 026	MK 360, circles	25	25	32-33
Quartz fiber	420 014	MK 360, circles	47	25	32-33
Quartz fiber	420 001	MK 360, circles	50	25	32-33
Quartz fiber	420 002	MK 360, circles	90	25	32-33
Quartz fiber	420 004	MK 360, circles	103	25	32-33
Quartz fiber	420 005	MK 360, circles	110	25	32-33
Quartz fiber	420 006	MK 360, circles	120	25	32-33
Quartz fiber	420 007	MK 360, circles	142	25	32-33
Quartz fiber	420 020	MK 360, circles	150	25	32-33
Quartz fiber	420 009	MK 360, circles	185	25	32-33
Quartz fiber	420 016	MK 360, circles	257	25	32-33
Quartz fiber	420 011	MK 360, circles	293	25	32-33
Quartz fiber	420 013	MK 360, circles	203 x 254	25	32-33
Quartz fiber	420 400	T293, circles	20	50	32-33
Quartz fiber	420 401	T293, circles	25	50	32-33
Quartz fiber	420 413	T293, circles	32	50	32-33
Quartz fiber	420 403	T293, circles	37	50	32-33
Quartz fiber	420 404	T293, circles	45	50	32-33
Quartz fiber	420 405	T293, circles	47	50	32-33
Quartz fiber	420 406	T293, circles	55	50	32-33
Quartz fiber	420 407	T293, circles	70	50	32-33
Quartz fiber	420 408	T293, circles	90	50	32-33
Quartz fiber	420 409	T293, circles	103	50	32-33
Quartz fiber	420 410	T293, circles	110	50	32-33
Quartz fiber	420 414	T293, sheets	203 x 254	50	32-33
Quartz fiber	420 412	T293, sheets	203 x 254	2x50	32-33
Industrial/Special products	130 850	3 h Folded filter	90	100	14-15
Industrial/Special products	130 851	3 h Folded filter	110	100	14-15
Industrial/Special products	130 852	3 h Folded filter	125	100	14-15

Type	Part number	Grade	Dimension in mm	Pack size	Page no.
Industrial/Special products	130 853	3 h Folded filter	150	100	14-15
Industrial/Special products	130 854	3 h Folded filter	185	100	14-15
Industrial/Special products	130 855	3 h Folded filter	240	100	14-15
Industrial/Special products	130 856	3 h Folded filter	270	100	14-15
Industrial/Special products	130 857	3 h Folded filter	320	100	14-15
Industrial/Special products	130 858	3 h Folded filter	385	100	14-15
Industrial/Special products	280 200	3 h sheets	580 x 580	100	14-15
Industrial/Special products	130 900	3 hw Folded filter	90	100	14-15, 19, 22-23
Industrial/Special products	130 901	3 hw Folded filter	110	100	14-15, 19, 22-23
Industrial/Special products	130 902	3 hw Folded filter	125	100	14-15, 19, 22-23
Industrial/Special products	130 903	3 hw Folded filter	150	100	14-15, 19, 22-23
Industrial/Special products	130 904	3 hw Folded filter	185	100	14-15, 19, 22-23
Industrial/Special products	130 905	3 hw Folded filter	240	100	14-15, 19, 22-23
Industrial/Special products	130 906	3 hw Folded filter	270	100	14-15, 19, 22-23
Industrial/Special products	130 907	3 hw Folded filter	320	100	14-15, 19, 22-23
Industrial/Special products	130 908	3 hw Folded filter	385	100	14-15, 19, 22-23
Industrial/Special products	280 210	3 hw sheets	580 x 580	100	14-15, 19, 22-23
Industrial/Special products	130 950	3 m/N Folded filter	90	100	34
Industrial/Special products	130 951	3 m/N Folded filter	110	100	34
Industrial/Special products	130 952	3 m/N Folded filter	125	100	34
Industrial/Special products	130 953	3 m/N Folded filter	150	100	34
Industrial/Special products	130 954	3 m/N Folded filter	185	100	34
Industrial/Special products	130 955	3 m/N Folded filter	240	100	34
Industrial/Special products	130 956	3 m/N Folded filter	270	100	34
Industrial/Special products	130 957	3 m/N Folded filter	320	100	34
Industrial/Special products	130 958	3 m/N Folded filter	385	100	34
Industrial/Special products	280 220	3 m/N sheets	580 x 580	100	34
Industrial/Special products	131 500	3 w Folded filter	90	100	34
Industrial/Special products	131 501	3 w Folded filter	110	100	34
Industrial/Special products	131 502	3 w Folded filter	125	100	34
Industrial/Special products	131 503	3 w Folded filter	150	100	34
Industrial/Special products	131 504	3 w Folded filter	185	100	34
Industrial/Special products	131 505	3 w Folded filter	240	100	34
Industrial/Special products	131 506	3 w Folded filter	270	100	34
Industrial/Special products	131 507	3 w Folded filter	320	100	34
Industrial/Special products	131 508	3 w Folded filter	385	100	34
Industrial/Special products	280 251	3 w sheets	580 x 580	100	34
Industrial/Special products	131 550	4 b Folded filter	90	100	14-15,20,24,34
Industrial/Special products	131 551	4 b Folded filter	110	100	14-15,20,24,34
Industrial/Special products	131 552	4 b Folded filter	125	100	14-15,20,24,34
Industrial/Special products	131 553	4 b Folded filter	150	100	14-15,20,24,34
Industrial/Special products	131 554	4 b Folded filter	185	100	14-15,20,24,34
Industrial/Special products	131 555	4 b Folded filter	240	100	14-15,20,24,34
Industrial/Special products	131 556	4 b Folded filter	270	100	14-15,20,24,34
Industrial/Special products	131 557	4 b Folded filter	320	100	14-15,20,24,34
Industrial/Special products	131 558	4 b Folded filter	385	100	14-15,20,24,34
Industrial/Special products	131 559	4 b Folded filter	400	100	14-15,20,24,34
Industrial/Special products	280 301	4 b sheets	580 x 580	100	14-15,20,24,34
Industrial/Special products	131 600	6 Folded filter	90	100	14-15, 20, 23
Industrial/Special products	131 601	6 Folded filter	110	100	14-15, 20, 23
Industrial/Special products	131 602	6 Folded filter	125	100	14-15, 20, 23
Industrial/Special products	131 603	6 Folded filter	150	100	14-15, 20, 23
Industrial/Special products	131 604	6 Folded filter	185	100	14-15, 20, 23
Industrial/Special products	131 605	6 Folded filter	240	100	14-15, 20, 23
Industrial/Special products	131 606	6 Folded filter	270	100	14-15, 20, 23
Industrial/Special products	131 607	6 Folded filter	320	100	14-15, 20, 23
Industrial/Special products	131 608	6 Folded filter	385	100	14-15, 20, 23
Industrial/Special products	280 321	6 sheets	580 x 580	100	14-15, 20, 23
Industrial/Special products	131 650	6 S/N, 145 g/m <sup>2</sup> Folded filter	125	100	22
Industrial/Special products	131 651	6 S/N, 145 g/m <sup>2</sup> Folded filter	150	100	22
Industrial/Special products	131 652	6 S/N, 145 g/m <sup>2</sup> Folded filter	185	100	22
Industrial/Special products	131 653	6 S/N, 145 g/m <sup>2</sup> Folded filter	240	100	22
Industrial/Special products	131 655	6 S/N, 145 g/m <sup>2</sup> Folded filter	270	100	22
Industrial/Special products	131 656	6 S/N, 145 g/m <sup>2</sup> Folded filter	320	100	22
Industrial/Special products	131 657	6 S/N, 145 g/m <sup>2</sup> Folded filter	500	100	22
Industrial/Special products	280 342	6 S/N, 145 g/m <sup>2</sup> sheets	580 x 580	100	22
Industrial/Special products	131 700	100/N Folded filter	110	100	22, 34
Industrial/Special products	131 701	100/N Folded filter	150	100	22, 34

Type	Part number	Grade	Dimension in mm	Pack size	Page no.
Industrial/Special products	131 702	100/N Folded filter	185	100	22, 34
Industrial/Special products	131 703	100/N Folded filter	210	100	22, 34
Industrial/Special products	131 704	100/N Folded filter	240	100	22, 34
Industrial/Special products	131 705	100/N Folded filter	270	100	22, 34
Industrial/Special products	131 706	100/N Folded filter	320	100	22, 34
Industrial/Special products	280 851	100 N sheets	580 x 580	100	22, 34
Industrial/Special products	131 850	603/N Folded filter	165	100	14, 15
Industrial/Special products	131 851	603/N Folded filter	185	100	14, 15
Industrial/Special products	131 852	603/N Folded filter	240	100	14, 15
Industrial/Special products	131 853	603/N Folded filter	250	100	14, 15
Industrial/Special products	280 901	603/N sheets	580 x 580	100	14, 15
Industrial/Special products	132 600	41 b Folded filter	185	100	23
Industrial/Special products	132 601	41 b Folded filter	240	100	23
Industrial/Special products	132 602	41 b Folded filter	320	100	23
Industrial/Special products	132 650	37/N, 135 g/m <sup>2</sup> Folded filter	125	100	14,15,20,23,34
Industrial/Special products	132 651	37/N, 135 g/m <sup>2</sup> Folded filter	150	100	14,15,20,23,34
Industrial/Special products	132 652	37/N, 135 g/m <sup>2</sup> Folded filter	185	100	14,15,20,23,34
Industrial/Special products	132 653	37/N, 135 g/m <sup>2</sup> Folded filter	240	100	14,15,20,23,34
Industrial/Special products	132 654	37/N, 135 g/m <sup>2</sup> Folded filter	320	100	14,15,20,23,34
Industrial/Special products	132 655	37/N, 135 g/m <sup>2</sup> Folded filter	385	100	14,15,20,23,34
Industrial/Special products	273 300	37/N, 135 g/m <sup>2</sup> sheets	580 x 580	100	14,15,20,23,34
Industrial/Special products	132 700	39/N, 180g/m <sup>2</sup> Folded filter	90	100	14,15,20,23,34
Industrial/Special products	132 701	39/N, 180g/m <sup>2</sup> Folded filter	125	100	14,15,20,23,34
Industrial/Special products	132 702	39/N, 180g/m <sup>2</sup> Folded filter	150	100	14,15,20,23,34
Industrial/Special products	132 703	39/N, 180g/m <sup>2</sup> Folded filter	185	100	14,15,20,23,34
Industrial/Special products	132 704	39/N, 180g/m <sup>2</sup> Folded filter	240	100	14,15,20,23,34
Industrial/Special products	132 705	39/N, 180g/m <sup>2</sup> Folded filter	320	100	14,15,20,23,34
Industrial/Special products	132 706	39/N, 180g/m <sup>2</sup> Folded filter	385	100	14,15,20,23,34
Industrial/Special products	274 300	39/N, 180 g/m <sup>2</sup> sheets	580 x 580	100	14,15,20,23,34
Industrial/Special products	132 750	480 phase seperator paper folded	90	100	24
Industrial/Special products	132 751	480 phase seperator paper folded	110	100	24
Industrial/Special products	132 752	480 phase seperator paper folded	125	100	24
Industrial/Special products	132 753	480 phase seperator paper folded	150	100	24
Industrial/Special products	132 754	480 phase seperator paper folded	185	100	24
Industrial/Special products	132 755	480 phase seperator paper folded	240	100	24
Industrial/Special products	132 756	480 phase seperator paper folded	270	100	24
Industrial/Special products	132 801	470 DE-filter paper folded	125	100	23
Industrial/Special products	132 802	470 DE-filter paper folded	150	100	23
Industrial/Special products	132 803	470 DE-filter paper folded	185	100	23
Industrial/Special products	132 804	470 DE-filter paper folded	240	100	23
Industrial/Special products	132 805	470 DE-filter paper folded	270	100	23
Industrial/Special products	132 806	470 DE-filter paper folded	320	100	23
Industrial/Special products	132 807	470 DE-filter paper folded	385	100	23
Industrial/Special products	160 600	69/K sheets	470 x 580	100	22, 24, 34
Industrial/Special products	280 851	1602/N sheets	580 x 580	100	14, 15
Industrial/Special products	280 401	C 160 sheets	580 x 580	100	34
Industrial/Special products	280 450	C 250 sheets	580 x 580	100	34
Industrial/Special products	280 600	C 450 sheets	580 x 580	100	34
Industrial/Special products	280 951	601/N sheets	580 x 580	100	22
Industrial/Special products	280 650	C 251 sheets	580 x 580	100	34

\* Size in mm unless other measure or term specified

Munktell offers a wide range of non standard sizes and other grades - please contact us for an offer

## Grade Comparison

Munktell	Whatman	Ahlstrom	Schleicher & Schuell	MFS/Advantec
Munktell no. 1	1	601	593	2
Munktell no. 2	2	642	597 / 2095	232
3S/H	3	237	n/a	n/a
1288	4	631	604 / 1573	1
1289	n/a	n/a	1574	n/a
1290	6	950	594	n/a
1291	n/a	n/a	1575	n/a
1293	5	610	602H	235
3hw	Student grade	601	595 / 3002	n/a
388	41 / 54 / 541	54 / 55	589/1 / 1505	5A
389	40 / 43	n/a	589/2 / 589/4 / 1506	7
390	44	74	589/5	5B
391	42 / 50 / 542	95	589/6 / 1507	6 / 4A
392	52 / 540	75	1506	n/a
393	42	94	589/3	5C
55/N	91 / 91c	909	n/a	n/a
4 b	93	n/a	0859	n/a
3m/N	93		0859	
1002	Student grade	601	595	n/a
1003	4	631	604	n/a
ET/401	Thimbles/2800	Extraction Thimbles	603	84
ET/MG160	603 G	n/a	603 G	86R
ET/MK 360	603 Q	n/a	603 Q	88RH
Labsorb	Benchcote	n/a	Polytrap 295 PE	n/a
Labsorb ultra	Benchcote plus	Polyshield	Polytrap 296 PE	n/a
FN100	3MMChr	238	3469	1514A
FN1	4 Chr	631	2040a	51A
FN2	n/a	n/a	2040b	n/a
FN3	1 Chr	601	2043a	151B
FN4	2 Chr	642	2043b	n/a
FN5	20 Chr	642	2045a	50
FN6	n/a	n/a	2045b	n/a
FN7a	3 Chr	237	n/a	n/a
FN8	31 ETChr	222	2668/8	n/a
BF 1	n/a	n/a	n/a	n/a
BF2	3MMChr	238	GB002	131
BF3	182	n/a	GB003	n/a
BF4	n/a	n/a	GB004	n/a
MGA	GFA	111	GF50	GA-55
MGB	GFB	121	GF51	GB-140
MGC	GFC	131	GF52	GC-50
MGD	GFD	141	GF53	GD-120
MGF	GFF	151	GF55	GF-75
MG 550-HA	934 AH	n/a	n/a	n/a
MK 360	QM-A	n/a	QF-20	QR-100
6 S/N, 145g/m <sup>2</sup>	113c	n/a	2048	n/a
6 or 41 b	114	962	2555	102 1/2
480	1PS	n/a	597 hy	n/a
3m/N	93	n/a	0903	n/a
601/N	91	n/a	n/a	n/a
1765	181	n/a	3014	n/a
TFN	903	n/a	2992	n/a

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