

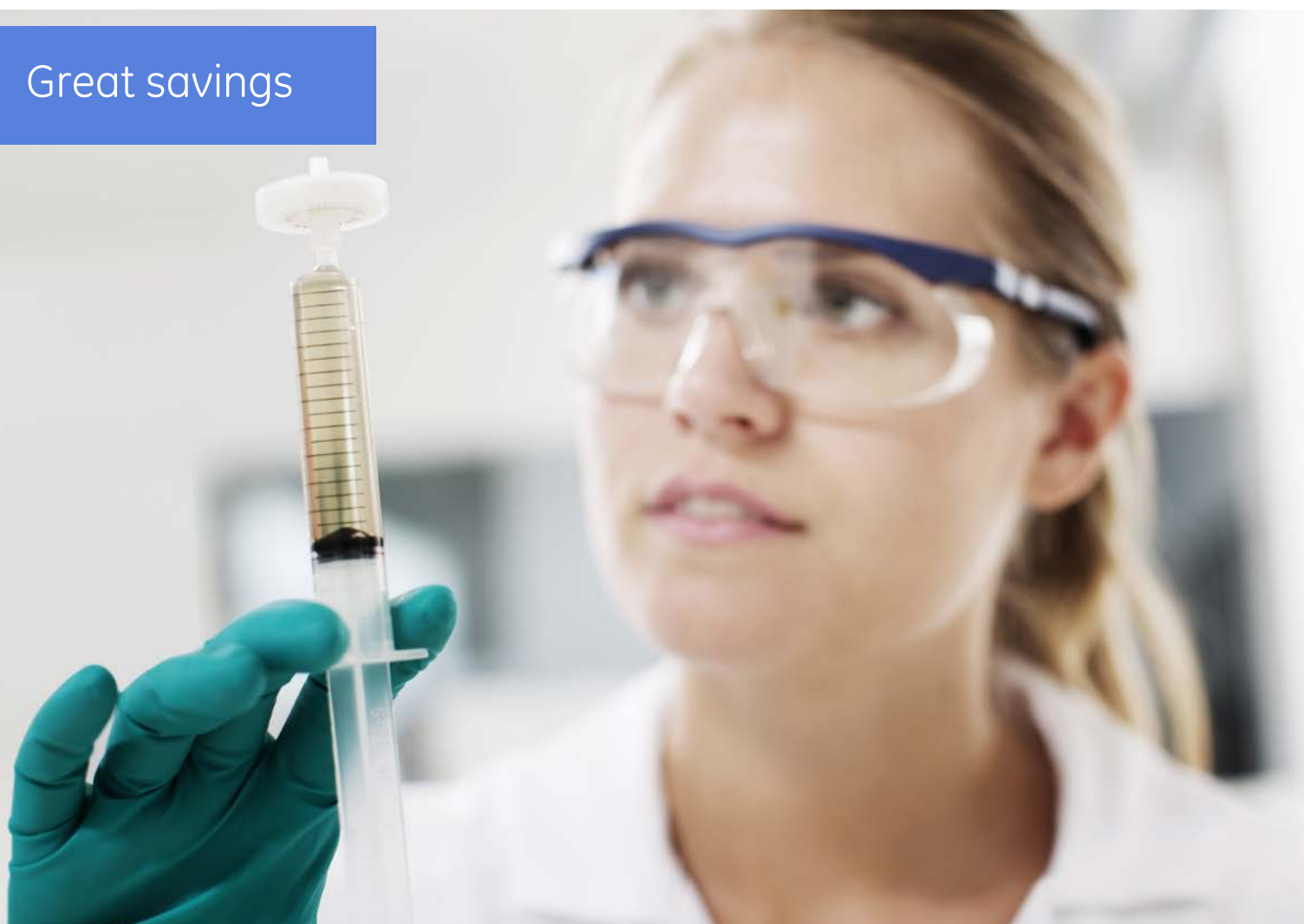
GE Healthcare
Life Sciences

VWR  | vwr.com
We Enable Science

Laboratory Essentials

Whatman™ filtration products for
academic research

Great savings



Puradisc Syringe filters for routine sample preparation

Puradisc Syringe filters combine quality and economy for filtration of samples up to 100 ml.

Feature and benefits

- ▶ Pigment-free polypropylene housing
- ▶ Standard inlet and outlet luer connectors
- ▶ Choice of filter sizes (4 mm to 30 mm) with optional Tube Tip
- ▶ Choice of wide variety of membranes or glass microfiber filter media



Fig 1: Puradisc Syringe filters.

Ordering information - Puradisc syringe filters, 25 mm*

| Membrane* | Nonsterile | | | | | | Sterile | | Quantity/pack |
|-----------------------|------------|-----------|-----------|-----------|-----------|-----|-----------|-----|---------------|
| | Nylon | PVDF | PTFE | PP | PES | GMF | PES | | |
| <i>Pore size (µm)</i> | | | | | | | | | |
| 0.2 | 28205-500 | 70240-164 | 28137-926 | 28137-954 | — | — | 28137-936 | 50 | |
| 0.45 | 28205-502 | 70240-166 | 28137-928 | 28137-956 | — | — | 28137-938 | 50 | |
| 0.2 | 28205-510 | 89233-770 | 28137-932 | 28137-958 | 28137-942 | — | — | 200 | |
| 0.45 | 28205-512 | 70240-170 | 28137-934 | 28137-960 | 28137-944 | — | — | 200 | |
| 0.45 | 28205-522 | — | — | — | — | — | — | 500 | |

* please contact your VWR Sales Representative for other diameters and pore sizes.

Whatman GD/X Syringe filters

Whatman GD/X is excellent for difficult to filter samples that are heavily laden with particles.

Features and benefits

- ▶ **Increased volume throughput:** Volume of sample filtered can be three to seven times greater than conventional filters
- ▶ **Superior performance:** up to four layers of filtration media reduce blockage and the need to replace the filter in mid-operation
- ▶ **Less hand force required:** The pre-filter layer allows samples to be filtered with less hand force, minimizing operator fatigue

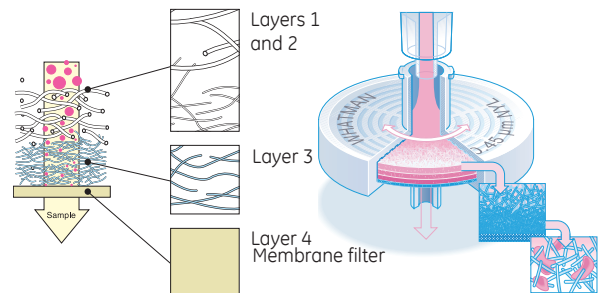


Fig 2: Whatman GD/X Syringe filters contain several filtration layers that substantially reduce blockage and increase volume throughput. This is a schematic representation of Whatman GD/X features only.

Ordering information - GD/X Syringe filters*

| Pore Size | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Quantity |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| GD/X with glass fiber prefilter | | | | | | | | |
| Membrane type | Nylon | PVDF | PTFE | PP | PES | RC | CA | |
| 25mm 0.2µm | 28138-154 | 28138-158 | 28138-162 | 28138-170 | 28138-166 | 89233-780 | 28138-174 | 150 /pack |
| 25mm 0.45µm | 28138-156 | 28138-160 | 28138-164 | 28138-172 | 28138-168 | 89233-782 | 28138-176 | 150 /pack |
| 13mm 0.2µm | 28138-102 | 28138-106 | 28138-110 | 28138-118 | 28138-114 | | 10147-964 | 150/pack |
| 13mm 0.45µm | 28138-104 | 28138-108 | 28138-112 | | | 10147-962 | 80087-208 | 150/pack |

* please contact your VWR Sales Representative for other diameters and pore sizes.

Mini-UniPrep™ filter vials for increased throughput

Whatman Mini-UniPrep Syringeless Filters provide a faster, easier way to remove particulates from samples being prepared for HPLC/UHPLC analysis.

Feature and benefits

- ▶ Replaces syringe, syringe filter, vial, and cap
- ▶ Time savings with multicompressors (6 or 8 positions)
- ▶ Waste and cost reduction



Fig 3: Mini-UniPrep glass (left) and plastic versions. Once compressed, the dimensions are equivalent in size to 12 mm x 32 mm vial.

Ordering information - Mini-UniPrep with polypropylene housing

| Pore Size | Housing | Cap | Cat. No. | | Cat. No. | | Cat. No. | | Quantity |
|-----------|-------------|-------------|---------------|-----------|-----------|-----------|-----------|-----------|----------|
| | | | PTFE | PVDF | Nylon | PP | RC | PES | |
| | | | Membrane Type | | | | | | |
| 0.2 µm | Translucent | Standard | 14224-946 | 14224-978 | 14224-976 | 14224-930 | 97015-564 | 14224-914 | 100/pack |
| 0.45 µm | Translucent | Standard | 28137-758 | 28137-762 | 28137-754 | 28137-766 | 97015-562 | 10147-936 | 100/pack |
| 0.2 µm | Amber | Standard | 84009-508 | 84009-504 | 84009-506 | 84009-512 | | 84009-510 | 100/pack |
| 0.45 µm | Amber | Standard | 83009-802 | 84009-514 | 89233-786 | 83009-806 | | 83009-804 | 100/pack |
| 0.2 µm | Translucent | Slit septum | 12000-528 | 12000-524 | 12000-526 | 12000-532 | | 12000-530 | 100/pack |
| 0.45 µm | Translucent | Slit septum | 83009-816 | 83009-808 | 83009-814 | 83009-820 | | | 100/pack |

Whatman Uniflo™ Syringe filters

Whatman Uniflo syringe filters ensure uniform and consistent performance at a moderate cost. Uniflo syringe filters are designed for routine applications which require an inexpensive filter.

Feature and benefits

- ▶ Ready-to-use, disposable syringe filters incorporating a variety of popular media types in a polypropylene housing
- ▶ Designed to provide clean filtrate from small volumes up to 100 ml.
- ▶ Two size formats – 13 mm and 25 mm diameters
- ▶ Polypropylene overmolded housing



Fig 4: Uniflo Syringe filters

Ordering information - Uniflo Syringe filters

| Diameter | Pore Size | Cat. No. | | | | Quantity |
|----------|-----------|----------|------|------|-------|----------|
| | | PES | PTFE | PVDF | Nylon | |
| 13 mm | 0.22 µm | - | - | - | - | 500/pack |
| 13 mm | 0.45 µm | - | - | - | - | 500/pack |
| 25 mm | 0.22 µm | - | - | - | - | 500/pack |
| 25 mm | 0.45 µm | - | - | - | - | 500/pack |

* please contact your VWR Sales Representative representative for product availability.

Filter devices for small volume sample preparation

- Step 1:** Choose application
Step 2: Choose appropriate filter

Puradisc Aqua 30

12 13



Puradisc FP

3* 4 9*
11 14

*Notes:
3 and 9: CA



ReZist™

1 4 7 14



Puradisc

3* 4 7 9*
11 12* 13* 14

*Notes:
3 & 9: CA, PES, PVDF
12 & 13: PES



Mini-UniPrep™ G2

2 7



Mini-UniPrep

2 7



Applications

1. Air venting
2. Automated filtration of samples/tablet dissolution testing
3. Biological sample preparation
4. Capillary electrophoresis
5. Difficult to filter samples (high solid content samples)
6. Filtration of colloidal material
7. HPLC/UHPLC sample preparation
8. Ion-chromatography
9. Filtration of protein containing samples
10. Filtration of nano particles
11. Sterile filtration (use sterile filter and membrane with pore size 0.2 µm)
12. COD/TOC/DOC
13. Trace metal analysis (ICP/AAS/ICP-MS)
14. UV/VIS analysis

COD = Chemical oxygen demand;
 TOC = Total organic carbon;
 DOC = Dissolved organic carbon
 Note: For guidance only. Only a selection of applications shown above



Anotop™

3 4 6 7 8
9 10* 11 14

*Notes: 0.02 µm



Anotop Plus

4 5 7 10*

*Notes: 0.02 µm

Uniflo

3 4 7 9
12 13 14



SPARTAN

4 7 9 14



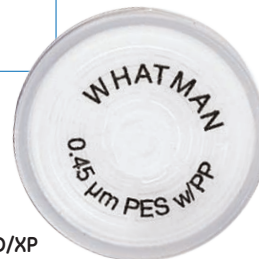
GD/X

4 5
7 11 14



GD/XP

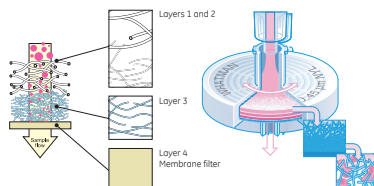
4 5 7 8
12 13 14



Need to speed up and simplify filtration? Consider Whatman GD/X and Mini-UniPrep ranges

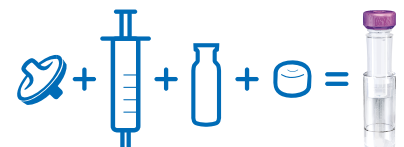
GD/X - syringe filter

Multilayer construction provides easier filtration of high particulate samples



Mini-UniPrep filter vial and multi compressor

All in one filtration of up to 8 HPLC samples in parallel



General filtration

Cellulose filter papers

GE Healthcare offers an extensive line of cellulose filter papers. Whatman filters deliver high quality, reproducibility, and uniformity for quantitative and preparative research applications.



Fig 5: Pre-pleated filter format.



Fig 6: Whatman flat filter paper (Grade 44).

Features and benefits

- ▶ Wide choice of retention and flow rate combinations—retention down to 2.5 μm
- ▶ A variety of filters with different levels of purity, hardness, and chemical resistance
- ▶ Pre-pleated format available for some grades: they are suitable for hard-to-filter samples or to increase flow rate

Quantitative cellulose filter papers

Whatman quantitative filters are for gravimetric analysis and the preparation of samples for instrumental analysis. The three formats available are:

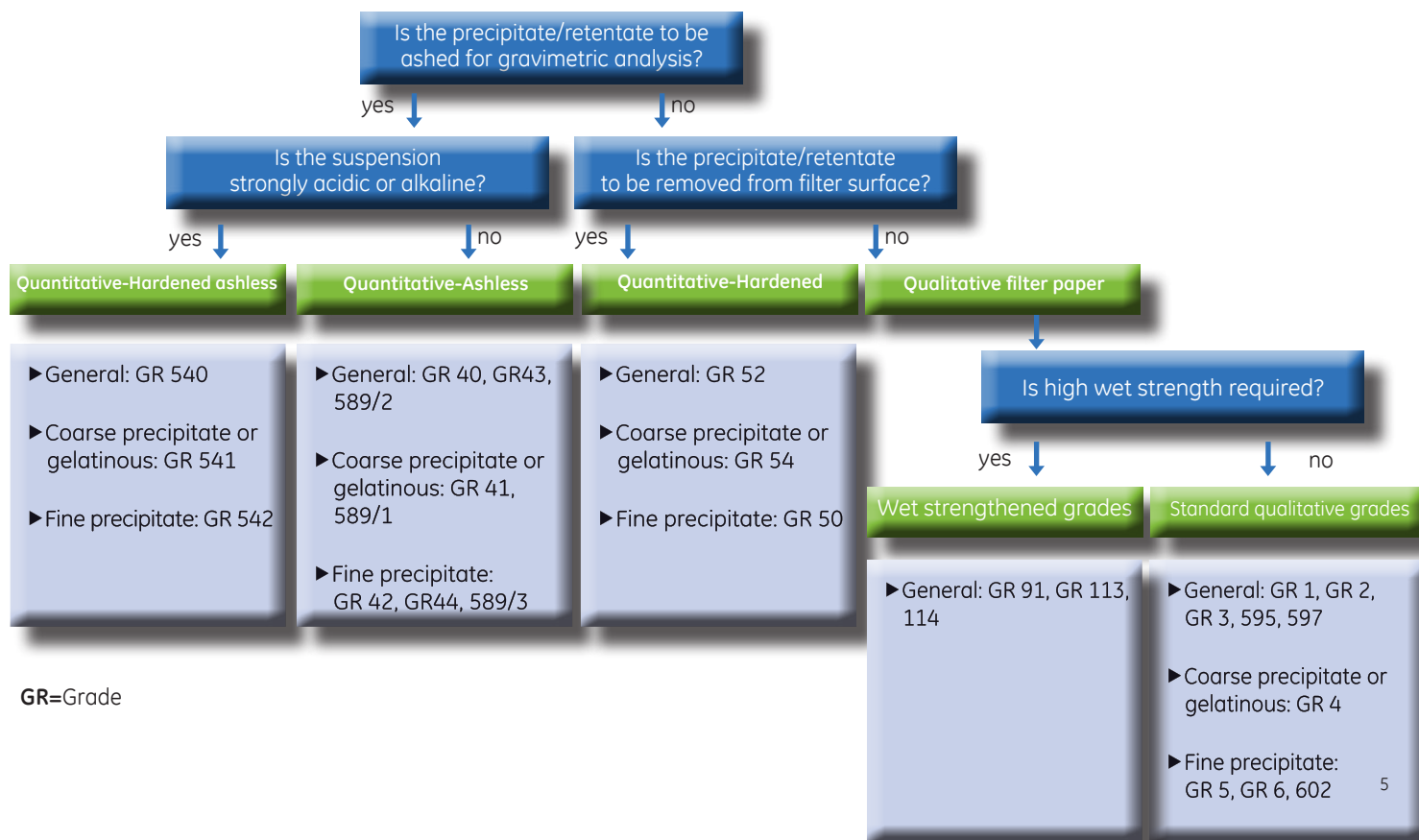
- ▶ Ashless quantitative filter papers
- ▶ Hardened low ash quantitative filter papers
- ▶ Hardened ashless quantitative filter papers

Qualitative cellulose filter papers

Whatman qualitative cellulose filters are for qualitative analytical experiments to determine and identify specific materials. The two formats available are:

- ▶ Standard qualitative filters papers
- ▶ Wet strengthened filter papers

Use the decision tree to identify the filter paper that meets your needs



Typical Properties of Whatman cellulose filter papers

Quantitative filter papers

| Grade | Nominal particle retention in liquid (µm) | Filtration speed (approx) Herzberg | Typical thickness (µm) | Basis weight (g/m ²) | Ash content | Flow – aspect |
|-------|---|------------------------------------|------------------------|----------------------------------|-------------|---------------|
|-------|---|------------------------------------|------------------------|----------------------------------|-------------|---------------|

Ashless quantitative cellulose filter papers

| | | | | | | |
|--------|-------|------|-----|-----|--------|----------------|
| 40 | 8 | 340 | 210 | 95 | 0.007% | Medium |
| 41 | 20 | 54 | 220 | 85 | | Fast |
| 42 | 2.5 | 1870 | 200 | 100 | | Slow |
| 43 | 16 | 155 | 220 | 95 | | Medium to fast |
| 44 | 3 | 995 | 180 | 80 | | Slow to medium |
| 589/1* | 12-25 | 25 | 190 | 80 | 0.01% | Fast |
| 589/2* | 4-12 | 70 | 190 | 85 | | Medium to fast |
| 589/3 | <2 | 750 | 150 | 84 | | Slow |

Hardened low ash quantitative cellulose filter papers

| | | | | | | |
|----|-----|------|-----|-----|--------|--------|
| 50 | 2.7 | 2685 | 115 | 97 | 0.015% | Slow |
| 52 | 7 | 235 | 175 | 101 | | Medium |
| 54 | 22 | 39 | 185 | 92 | | Fast |

Hardened ashless quantitative cellulose filter papers

| | | | | | | |
|-----|-----|------|-----|----|--------|--------|
| 540 | 8 | 200 | 115 | 88 | 0.006% | Medium |
| 541 | 22 | 34 | 175 | 82 | | Fast |
| 542 | 2.7 | 2510 | 185 | 93 | | Slow |

* Pre-pleated versions available

Maximum practical volumes of circle sizes (quadrant folded)

| | | | | | | |
|----------------------|----|-----|-----|-----|-----|-----|
| Volume (ml) | 15 | 20 | 35 | 75 | 135 | 300 |
| Filter Diameter (mm) | 90 | 110 | 125 | 150 | 185 | 240 |

Ordering information – Quantitative filter papers 100/pack

| Diameter | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. |
|----------|-----------|-----------|-----------|-----------|-----------|---------------------------|---------------------------|-------------|
| Ashless | Grade 40 | Grade 41 | Grade 42 | Grade 43 | Grade 44 | Grade 589/1 | Grade 589/2 | Grade 589/3 |
| 90 mm | 28475-048 | 28478-024 | 28480-081 | 70240-050 | 28482-021 | 10034-602 | 10034-616 | |
| 110 mm | 28475-060 | 28478-046 | 28480-106 | 28481-295 | 28482-043 | 14224-460 | 10034-618 10034-626(P) | 14224-450 |
| 125 mm | 28475-081 | 28478-068 | 28480-128 | 28481-302 | 28482-065 | 14224-458 | 10034-620 | 14224-444 |
| 150 mm | 28475-106 | 28478-080 | 28480-140 | 70240-046 | 28482-070 | 14224-456 10034-604(P) | 28427-103 10034-628(P) | 89233-654 |
| 185 mm | 28475-128 | 28478-104 | 28480-161 | 28297-320 | 28297-334 | 14224-454 | 10034-622 | 10034-630 |
| 240 mm | 28475-140 | 28297-291 | 28480-182 | | | | 10034-624 | |

Hardened and Hardened ashless

| | | | | | | |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|
| | Grade 50 | Grade 52 | Grade 54 | Grade 540 | Grade 541 | Grade 542 |
| 90 mm | 28485-063 | 28487-047 | 28489-042 | 28297-368 | 28479-049 | 28297-392 |
| 110 mm | 28485-085 | 70240-066 | 28489-064 | 28297-370 | 28479-060 | 28297-394 |
| 125 mm | 28485-100 | 28487-080 | 28489-086 | 28297-372 | 28479-082 | 28297-396 |
| 150 mm | 28485-121 | 28487-105 | 28489-100 | 28297-374 | 28479-107 | 28297-398 |
| 185 mm | 28485-143 | | 28489-122 | 28297-376 | 28479-129 | 28297-400 |
| 240 mm | 28485-165 | 28297-354 | 28489-144 | 10035-282 | 28479-130 | 10147-894 |

Typical Properties of Whatman cellulose filter papers

Qualitative filter papers

| Grade | Nominal particle retention in liquid (µm) | Filtration speed (approx) Herzberg (s) | Typical thickness (µm) | Basis weight (g/m ²) | Grade for pre pleated version | Flow – aspect |
|-------|---|--|------------------------|----------------------------------|-------------------------------|---------------|
|-------|---|--|------------------------|----------------------------------|-------------------------------|---------------|

Standard qualitative cellulose filter papers

| | | | | | | |
|------|-------|------|-----|-----|---------------------|-----------------------|
| 1 | 11 | 150 | 180 | 88 | | Medium |
| 2 | 8 | 240 | 190 | 103 | 2V | Medium |
| 3 | 6 | 325 | 390 | 187 | | Medium-thick |
| 4 | 20-25 | 37 | 205 | 96 | | Very fast |
| 5 | 2.5 | 1420 | 200 | 98 | 5V | Slow |
| 6 | 3 | 715 | 180 | 105 | | Medium to slow |
| 595 | 4-7 | 80 | 150 | 68 | 595 ^{1/2} | Medium to fast – thin |
| 597 | 4-7 | 70 | 180 | 85 | 597 ^{1/2} | Medium to fast |
| 602h | <2 | 375 | 160 | 84 | 602h ^{1/2} | Slow |

Qualitative wet strengthened cellulose filter papers

| | | | | | | |
|------|----|-----|-----|-----|---------------------|---------------|
| 113 | 30 | 28 | 420 | 125 | 113V | Fast – creped |
| 114 | 25 | 38 | 190 | 77 | 114V | Fast – smooth |
| 91 | 10 | 70 | 205 | 71 | | Creped |
| 1573 | <2 | 700 | 140 | 92 | 1573 ^{1/2} | Slow |

Ordering information – Qualitative filter papers - 100/pack

| Diameter | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| Qualitative | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 595 | Grade 597 | Grade 602H |
| 42.5 mm | 28450-026 | 28455-030 | | 28460-019 | 70240-034 | 10147-902 | | | |
| 55 mm | 28450-048 | 28455-041 | 28456-022 | 28460-030 | 28462-025 | | | 10034-666 | |
| 70 mm | 28450-070 | 28455-063 | 28456-043 | 28460-041 | 28462-047 | 10147-904 | | 11008-542 | |
| 90 mm | 28450-081 | 28455-085 | 28456-065 | 28460-063 | 28462-069 | 10147-988 | | 14224-440 | |
| 110 mm | 28450-106 | 28455-110 | 28456-087 | 28460-085 | 28462-080 | 28462-170 | 10034-642 | 11008-544 | |
| 125 mm | 28450-128 | 28455-121 | 28456-101 | 28460-110 | 28462-104 | 10147-990 | 10035-780 | 14224-442 | 10034-698 |
| 150 mm | 28450-150 | 28455-142 | 28456-123 | 28460-120 | 28462-126 | 10147-992 | 28430-109 | 14224-436 | 10034-700 |
| 185 mm | 28450-160 | 28455-164 | 28456-145 | 28460-142 | 28462-148 | 10147-994 | | 89233-650 | 10034-702 |
| 240 mm | 28450-182 | 28455-186 | 28456-167 | 28460-164 | 28462-160 | 10035-236 | | 10034-668 | 10034-704 |

Qualitative wet strengthened

| | Grade 91* | Grade 113 | Grade 114 | Grade 1573 |
|--------|-----------|-----------|-----------|------------|
| 90 mm | | 28297-254 | 70240-094 | |
| 110 mm | | 10147-906 | | |
| 125 mm | | 28297-258 | 70240-074 | |
| 150 mm | 10035-700 | 28297-260 | 28464-994 | 11008-574 |
| 185 mm | 10035-704 | 28297-262 | 70240-076 | 10034-724 |
| 240 mm | 10035-708 | 10147-908 | 70240-078 | |

Qualitative pre-pleated

| | Grade 2V | Grade 113V | Grade 114V | Grade 595 ^{1/2} | Grade 597 ^{1/2} | Grade 602h ^{1/2} | Grade 1573 ^{1/2} |
|--------|-----------|------------|------------|--------------------------|--------------------------|---------------------------|---------------------------|
| 70 mm | | | | 10035-782 | 14223-590 | | |
| 90 mm | | | | 10035-784 | 10034-670 | 10192-062 | |
| 110 mm | | | | 10035-786 | 10034-672 | | |
| 125 mm | 28465-022 | 28297-270 | 28467-061 | 10034-644 | 14224-424 | 10034-706 | 10034-728 |
| 150 mm | 28465-044 | 28297-272 | 28467-083 | 10034-646 | 14224-640 | 74330-460 | 10034-730 |
| 185 mm | 28465-066 | 28297-274 | 28467-108 | 10034-648 | 14223-536 | 10034-708 | 14224-412 |
| 240 mm | 28465-088 | 28297-276 | 28467-120 | 10034-652 | 14224-420 | 10034-710 | 14224-416 |

*Grade 91: 1000 filters/pack

Glass fiber filters

We provide Whatman binder free glass microfiber filters manufactured from 100% borosilicate glass for use in many applications such as general clarification, dissolution testing or prefiltration

Features and benefits

- ▶ Depth filters
- ▶ Fast flow rates
- ▶ High loading capacity
- ▶ Retention of very fine particles, extending into the sub-micron range

Typical properties of glass fiber filters



Fig 7: Whatman binder free glass fiber filters.

| Product | Filtration speed | Particle retention in liquid (µm) | Typical thickness (µm) | Basic weight (g/m ²) |
|---------------------------|------------------|-----------------------------------|------------------------|----------------------------------|
| Grade GF/A | Fast | 1.6* | 260 | 53 |
| Grade GF/B | Medium to fast | 1.0* | 675 | 143 |
| Grade GF/C™ | Medium to fast | 1.2* | 260 | 53 |
| Grade GF/D | Fast | 2.7* | 675 | 121 |
| Grade GF/F | Medium | 0.7* | 420 | 75 |
| GMF 150 1 µm - Multilayer | Medium to fast | 1.2* | 730 | 139 |

*Particle retention rating at 98% efficiency

Ordering information - Glass fiber filters - 100/pack

| Diameters ** | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. |
|--------------|------------|------------|------------|------------|------------|--------------------|
| Glass fiber | Grade GF/A | Grade GF/B | Grade GF/C | Grade GF/D | Grade GF/F | Grade GMF 150 1 µm |
| 25 mm | 28497-110 | 28497-437 | 28497-652 | 70240-134 | 28497-925 | |
| 42.5 mm | 28497-142 | 28497-459 | 28497-685 | 28497-867 | 28497-947 | |
| 47 mm | 28497-153 | 28497-460 | 28497-696 | 28497-725 | 28497-958 | 28495-612 |
| 55 mm | 28497-164 | 28497-470 | 28497-700 | 28497-889 | 28497-969 | |
| 70 mm | 28497-186 | 28497-481 | 28497-721 | 28497-890 | 28497-970 | |
| 90 mm | 28497-200 | 28497-492 | 28497-743 | 28161-491 | 28497-972 | 28495-616 |

**Other grades and dimensions are also available—please contact your VWR Sales Representative for more information

Even the smallest thing can have a big impact.

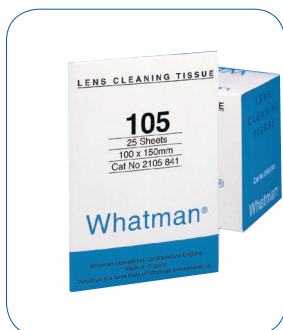


Essential laboratory accessories

In addition to the filtration consumable range, we provide a comprehensive range of accessories for routine work in your laboratory. The table below shows a selection of the products we offer.



1PS phase separator



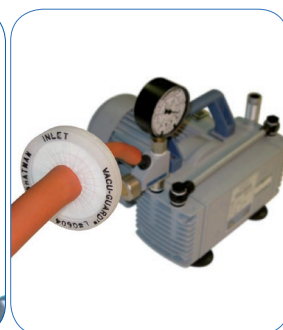
Grade 105 lens cleaning tissue



Benchkote™ protection paper



pH papers



Vacu-Guard Pump protection filter

| Description | Product name | Dimension | Cat. No. | Qty/pack |
|--|----------------------------------|-----------------|------------------|-------------------------|
| Phase separation paper | 1PS Phase separator paper | Diam. 125 mm | 28491-146 | 100 |
| | | Diam. 150 mm | 28491-168 | 100 |
| Optical lens cleaning tissue | Grade 105 | 100 × 150 mm | 97002-542 | 25 wallets of 25 sheets |
| | | 200 × 300 mm | 52846-108 | 100 |
| Benchkote bench protection papers | Benchkote | 460 × 570 mm | 52855-001 | 50 |
| | | 460 mm × 50 m | 52856-004 | 1 reel |
| | Benchkote Plus | 500 × 600 mm | 52854-994 | 50 |
| | | 600 mm × 50 m | 52857-997 | 1 reel |
| Weighing papers and boats | Grade 2122 | 100 × 100 mm | 10035-658 | 500 |
| | Grade B-2 Sheets | 3 × 3 inch | 28498-002 | 500 |
| | Kjeldahl Analysis Weighing Boats | 55 × 10 × 10 mm | 10034-722 | 100 |
| Antibiotic assay papers | Antibiotic Assay Discs | 6 mm | 89007-048 | 1000 |
| pH Indicator Papers | Colour Bonded, 0.0 to 14.0 range | 6 × 80 mm | 28297-426 | 100 strips |
| | | 7 mm × 5 m | 14217-670 | 1 |
| | | 7 mm × 5 m | 14217-674 | 1 |
| Pump protection filters | Vacu-Guard | 50 mm | 28137-858 | 10 |

Benchkote surface protectors

GE's Whatman Benchkote surface protector is an absorbent lab paper that protects surfaces against hazardous spills. After use, the bench protector sheet is incinerated or disposed of according to local regulations.

Features and benefits

- ▶ **Strong:** Benchkote surface protector is strong and tear resistant when wet or dry
- ▶ **Ease-of-use:** Smooth white surface can be written on with ink or pencil and lies flat
- ▶ **Clean:** Suitable for saturation with disinfectant to protect benches where pathogens and other bacteria are present
- ▶ **Disposable:** Benchkote paper can be incinerated after use

Ordering information - Benchkote surface protectors

| Surface protector | Quantity | Cat. No. |
|--|----------|-----------|
| Benchkote surface protector, 460 × 570mm sheet | 50/pack | 52855-001 |
| Benchkote surface protector, 460mm × 50m reel | 1/reel | 52856-004 |
| Benchkote surface protector, 460 × 570mm sheet | 100/pack | 10035-340 |

Benchkote Plus Surface Protectors

| | | |
|--|---------|-----------|
| Benchkote Plus Surface Protector, 500 × 600 mm sheet | 50/pack | 52854-994 |
| Benchkote Plus Surface Protector, 600 mm × 50m reel | 1/reel | 52857-997 |

Vacu-Guard™ vacuum protection filters

Protecting your employees, equipment and work area from harmful contaminants is more important than ever. For maximum safety, choose the Whatman Vacu-Guard family of products. These easy-to-use in-line filter devices help to confine and isolate infectious materials in vacuum systems and protect your laboratory.

Features and benefits

- ▶ Protects vacuum systems from pathogen contamination.
- ▶ Protection of work area from airborne pathogens and hazardous vacuum pump exhaust.
- ▶ Protects vacuum pumps from aerosol corrosion.

Ordering information - Vacu-Guard vacuum protection filters

| Vacuum protection filter | Pore size | Quantity | Cat. No. |
|----------------------------|-----------|----------|-----------|
| Vacu-Guard 50 mm Disc | 0.45µm | 10/pack | 28137-858 |
| Vacu-Guard 60 mm Disc | 0.45 µm | 10/pack | 28137-737 |
| Vacu-Guard 150mm Disc (AC) | 0.45 µm | 1/pack | 28137-857 |
| Vacu-Guard 150mm Disc (D) | 0.45 µm | 1/pack | 28137-859 |



Fig 8: Benchkote surface protectors



Fig 9: Vacu-Guard vacuum protection filters

Chemical compatibility of membranes and housings

| Solvent | ANP | CA | CN | PC | PE | GMF | NYL | PP | DpPP | PES | PTFE** | PVDF | RC |
|--------------------------|-----|----|----|----|----|-----|-----|----|------|-----|--------|------|----|
| Acetic Acid, 5% | R | LR | R | R | | R | R | R | R | R | R | R | R |
| Acetic Acid, Glacial | R | NR | NR | | | R | LR | R | R | R | R | R | NR |
| Acetone | R | NR | NR | NR | R | R | R | R | R | NR | R | NR | R |
| Acetonitrile | R | NR | NR | | | R | R | R | R | NR | R | R | R |
| Ammonia, 6N | NR | | NR | NR | LR | LR | R | R | R | R | R | LR | LR |
| Amyl Acetate | LR | NR | NR | NR | R | R | R | R | R | LR | R | LR | R |
| Amyl Alcohol | R | LR | LR | | | R | R | R | R | NR | R | R | R |
| Benzyl Alcohol* | R | LR | LR | LR | R | R | LR | R | R | NR | R | R | R |
| Butyl Alcohol | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Butyl Chloride* | | | | | | R | NR | NR | NR | | R | R | |
| Carbon Tetrachloride* | R | NR | R | LR | R | R | LR | NR | NR | NR | R | R | R |
| Chloroform* | R | NR | R | NR | R | R | NR | LR | LR | NR | R | R | R |
| Chlorobenzene* | R | | LR | NR | | R | NR | LR | | NR | R | R | R |
| Citric Acid | | | | | | R | LR | R | | R | R | R | R |
| Cyclohexanone | R | NR | NR | | | R | NR | R | R | NR | R | R | R |
| Cyclohexane* | R | NR | NR | R | R | R | NR | NR | NR | NR | R | R | R |
| Diethyl Acetamide | | NR | NR | | | R | R | R | R | | R | NR | R |
| Dimethyl Formamide | LR | NR | NR | | | R | R | R | R | NR | R | NR | LR |
| Dioxane | R | NR | NR | NR | R | R | R | R | R | LR | R | LR | R |
| DMSO | LR | NR | NR | NR | R | R | R | R | R | NR | R | LR | LR |
| Ethanol | R | R | NR | R | R | R | R | R | R | R | R | R | R |
| Ethers* | R | LR | LR | R | R | R | R | NR | NR | R | R | LR | R |
| Ethyl Acetate | R | NR | NR | NR | R | R | R | R | R | NR | R | NR | R |
| Ethylene Glycol | R | LR | LR | R | R | R | R | R | R | R | R | R | R |
| Formaldehyde* | LR | LR | R | R | R | R | R | LR | LR | R | R | R | LR |
| Hexane | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Hydrochloric Acid, Conc* | NR | NR | NR | NR | NR | R | NR | LR | LR | R | R | R | NR |
| Isobutyl Alcohol | R | LR | LR | R | R | R | R | R | R | | R | R | R |
| Isopropyl Alcohol | R | R | LR | | | R | R | R | R | | R | R | R |
| Methanol | R | R | NR | R | R | R | R | R | R | R | R | R | R |
| Methyl Ethyl Ketone | R | LR | NR | NR | R | R | R | R | R | NR | R | NR | R |
| Methylene Chloride* | R | NR | LR | | | R | NR | LR | LR | NR | R | R | R |
| Nitric Acid, Conc* | | NR | NR | LR | NR | R | NR | NR | NR | NR | R | R | NR |
| Nitric Acid, 6N* | | LR | LR | | | R | NR | LR | LR | LR | R | R | LR |
| Nitrobenzene* | LR | NR | NR | NR | R | R | LR | R | R | NR | R | R | R |
| Pentane* | R | R | R | R | R | R | R | NR | NR | R | R | R | R |
| Phenol 0.5% | LR | LR | R | | | R | NR | R | R | NR | R | R | R |
| Pyridine | R | NR | NR | NR | R | R | LR | R | R | NR | R | NR | R |
| Sodium Hydroxide, 6N | NR | NR | NR | NR | NR | NR | LR | R | R | R | R | NR | NR |
| Sulfuric Acid, Conc* | NR | NR | NR | NR | NR | R | NR | NR | NR | NR | R | NR | NR |
| Tetrahydrofuran* | R | NR | NR | | | R | R | LR | LR | NR | R | R | R |
| Toluene* | R | LR | R | NR | R | R | LR | LR | LR | NR | R | R | R |
| Trichloroethane* | R | NR | LR | NR | R | R | LR | LR | LR | NR | R | R | R |
| Trichloroethylene* | R | | R | | | R | NR | LR | LR | NR | R | R | R |
| Water | R | R | R | R | R | R | R | R | R | R | R | R | R |

R = Resistant; LR = Limited Resistance; NR = Not Recommended; * = Short Term Resistance of Housing

The above data is to be used as a guide only. Testing prior to application is recommended.

** = membrane may need pre-wetting with isopropanol/methanol if filtering a polar liquid

ANP = Anopore; CA = Cellulose Acetate; CN = Cellulose Nitrate; DpPP = Polypropylene Depth Filter; GMF = Glass Microfiber; NYL = Nylon; PC = Polycarbonate; PE = Polyester; PES = Polyethersulfone; PP = Polypropylene; PTFE = Polytetrafluoroethylene; PVDF = Polyvinylidene Difluoride; C= Regenerated Cellulose

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