Qualitative Filter Papers

- **100% cotton linter cellulose**
- **pH tolerant:** 0 to 12
- **Thermostable:** up to 120°C
- **Wide selection** – seven types
- **Ash Content:** 0.1%

Applications

- Clarify and remove precipitates
- Preparation for qualitative analysis

Ordering Information

See page 26.

Qualitative filter papers

Characteristics and Applications: Conversions – Qualitative Papers

Grade	Comments	Weight (g/m^2)	Thickness (mm)	Flow Time*1 (sec)	Absorption speed*2 (cm)	Wet Strength*3 (kPa)	Nominal Rating (µm)	Collection Efficiency (%, 0.3 µm DOP)	Conversion*4	
									Whatman	ex-Schleicher & Schuell
No. 1	Retains large crystalline particles and gelatinous precipitates. Fast flow rate, smooth surface, normal hardness	90	0.20	45	9.0	7	6 (Coarse)	65	4	410 or 1450cv
No. 2	Retains medium crystalline precipitates, fast flow rate, smooth surface, normal hardness	125	0.26	80	8.0	8	5 (Medium)	80	-	604
No. 231	Retains crystalline precipitates, moderate flow rate, smooth surface, normal hardness	95	0.18	130	7.5	-	(Medium)	-	2	-
No. 232	Retains medium to medium-fine particulates, slow flow rate, smooth, normal hardness	90	0.18	250	5.0	-	(Med./ Med.-Fine)	-	6	-
No. 131	High retention efficiency for fine crystalline precipitates like barium sulfate, slow flow rate, smooth surface, normal hardness	140	0.25	240	6.0	8	3 (Med.-Fine)	90	3	597
No. 235	Highest retention efficiency, retains very fine particulates, very slow flow rate, smooth	95	0.17	1,200	4.0	-	(Very Fine)	-	5	-
No. 101	Seed germination, retains large particles	80	0.21	50	8.0	34	5 (Coarse and gelatinous)	-	91	-

*1. Flow time is the time in seconds required to filter 100 mL of distilled water at 20°C under pressure supplied by a 10 cm water column through a 10 cm^2 section of filter paper.
*2. Absorption speed is the distance in cm that water will travel in an upright strip of filter paper in ten (10) minutes at 20°C.
*3. Wet strength is the pressure measured by Mullen Burst Strength Tester after soaking in water.
*4. Conversions between manufacturers are not absolute. Use these conversions as a guideline.

Quantitative/Hardened Filter Papers

- **100% cotton linter cellulose**
- **Ash Content:** 0.01%(Except No.4A 0.025%)
- **Acid washed:** Double acid washed in hydrochloric then hydrofluoric acid (No. 3, 5A, 5B, 5C, 6), then rinsed with ultrapure water to neutralize. No. 4A is further treated with nitric acid before washing

Applications

- Gravimetric analysis
- Environmental monitoring

Quantitative filter papers

Characteristics and Applications: Conversions – Quantitative Papers

Grade	Comments	Weight (g/m^2)	Thickness (mm)	Flow Time*1 (sec)	Absorption speed*2 (cm)	Wet Strength*3 (kPa)	Nominal Rating (µm)	Collection Efficiency (%, 0.3 µm DOP)	Conversion*4	
									Whatman	ex-Schleicher & Schuell
No. 3 Ashless	Medium retention (5-10 µm), fast flow rate Analysis of soils, fertilizers, cement, and minerals	113	0.23	130	7.5	12	5 (Medium)	80	43	593-A
No. 5A Ashless	Fast flow rate, retains coarse particulates and gelatinous precipitates (>10 µm). Filter hydroxides and metallic aerosols, environmental monitoring, determine silica content in steel	97	0.22	60	9.5	10	7 (Coarse and gelatinous)	75	41	589-IH
No. 5B Ashless	Retains medium particles (5-10 µm) such as $CaCO_3$, $PbSO_4$, $CaCO_4$, $MnCO_3$, $ZnCO_3$, ZnS, AgCl	108	0.21	195	7.0	12	4 (Medium)	90	40	589 / 6 Green
No. 5C Ashless	Collect fine precipitates (<5 µm) such as $SrSO_4$, $BaSO_4$, $HgCrO_4$, and colloidal dispersions; gravimetric analysis	118	0.22	570	6.0	12	1 (Fine)	93	44	589 / 3 Blue
No. 6 Ashless	Retains medium-fine particulates (2-10 µm), trace and precious metals	103	0.20	300	6.0	12	3 (Medium Fine)	90	-	589 / 2 White
No. 7 Ashless	Highest purity for retaining medium particles (5-10 µm), precise gravimetric analysis	87	0.18	200	7.0	10	4 (Medium)	85	-	-
No. 4A Hardened	High wet strength, suitable for use under high pressure, high chemical and pH resistance, retains fine crystalline precipitates (<5 µm), slow flow	96	0.12	915	4.0	52	1 (Very Fine)	90	50	-

Footnotes: See facing page