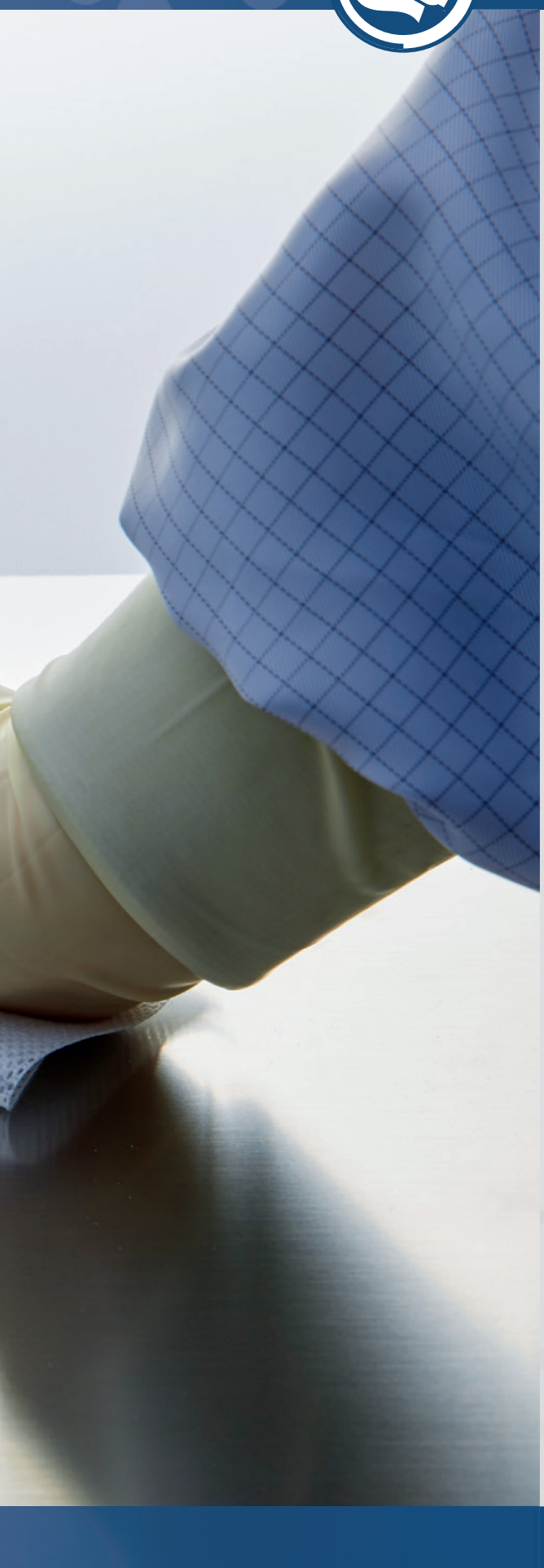
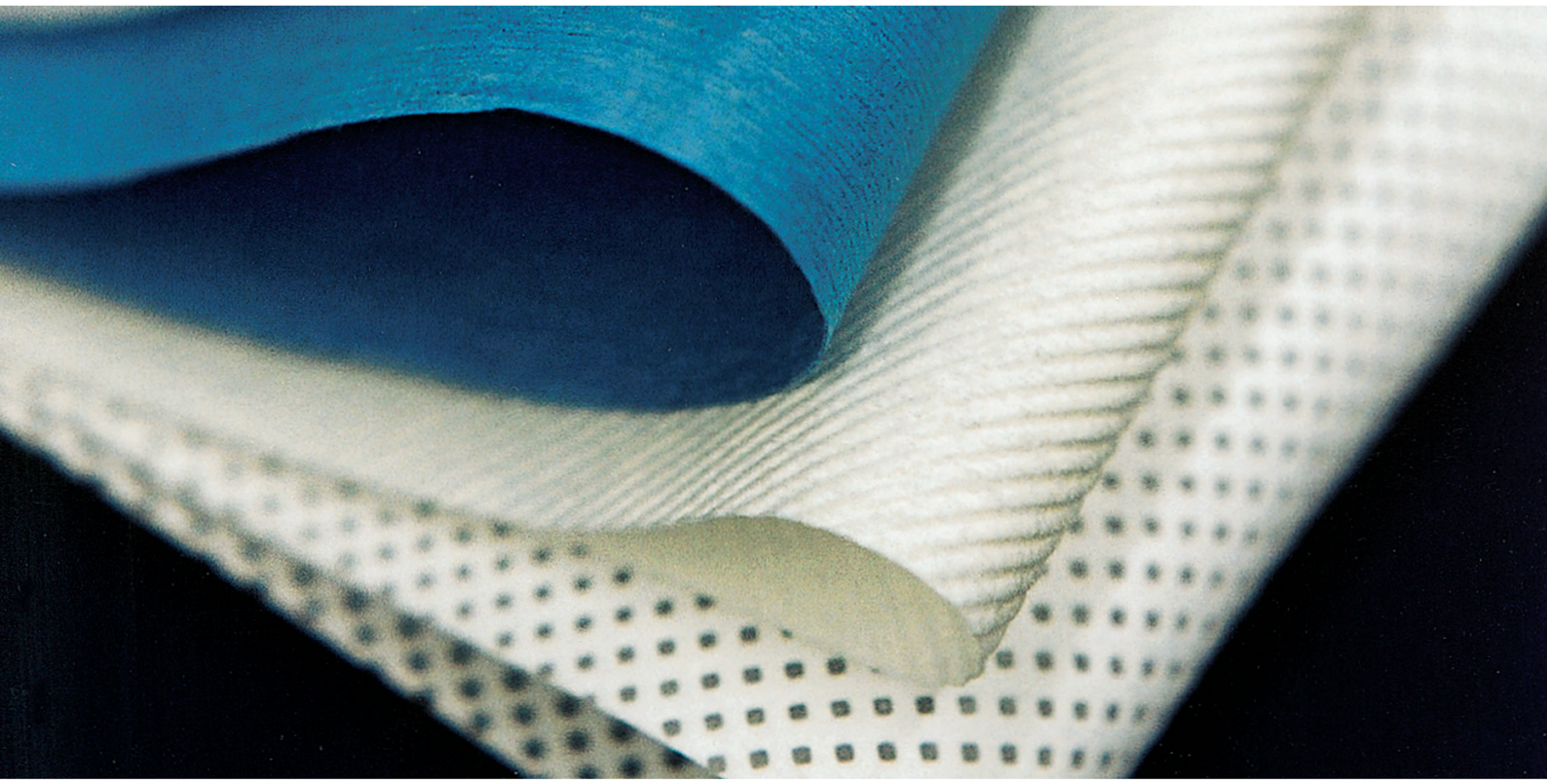
Diversity of wipes

Special wipes for every application process in the cleanroom



Chapter 5

Interesting facts about cleanroom wipes



Wiping cleaning in cleanrooms

Why do we need cleanroom wipes at all?
What is the difference and what is important?
What types of wipes are available?

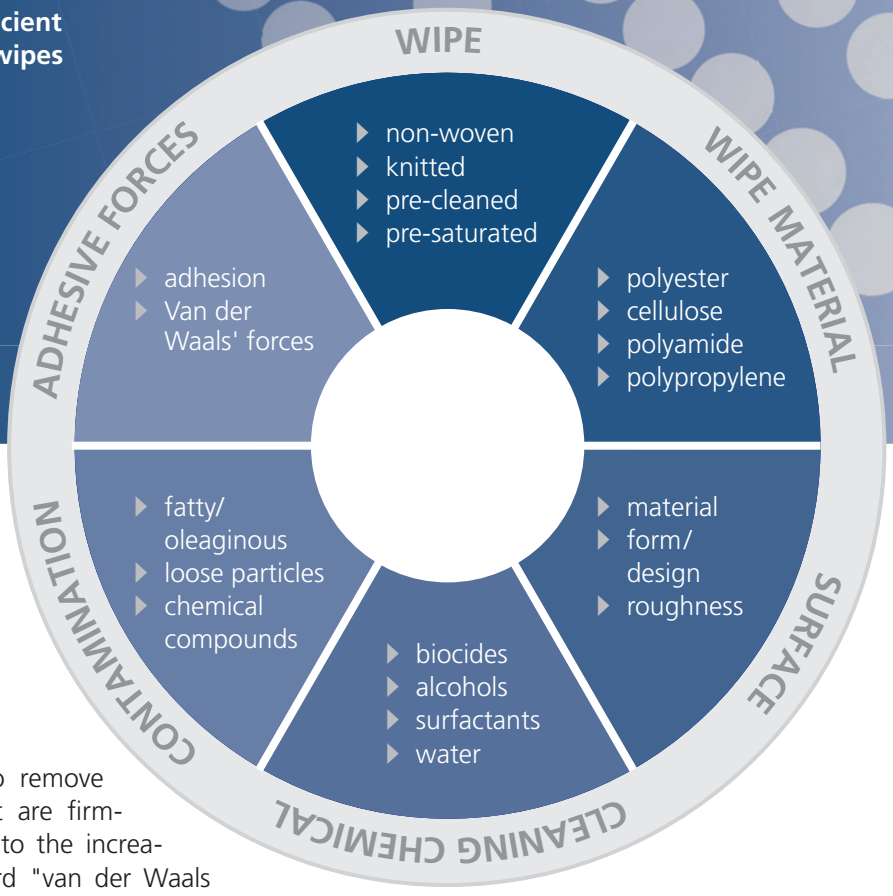
The cleanliness of a cleanroom does not only depend on the filter technology used, but is directly related to the production process, the high purity clean media and consumables that are necessary for this purpose, which contribute to extra contamination in addition to the human particle source.

Typical examples of manufacturing processes in a cleanroom are the production of semiconductors, optical components, electronic parts, pharmaceuticals, food and many other applications in the automotive, aerospace, microelectronics and other industries.

Consequently, filter technology is no guarantee that all these particles are safely filtered out of the cleanroom process environment by 100%.

These suspended air particles remaining in the cleanroom deposit over time on the various surfaces in the clean environment, such as ceilings, walls, floors, furniture, machines, etc., thus representing an increased contamination risk for the respective production process.

Influencing factors for efficient cleaning with cleanroom wipes



Often it is only possible to remove most of the impurities that are firmly adhered to surfaces due to the increased adhesive forces (keyword "van der Waals forces") by wiping.

The same applies, of course, to filmic contaminations, which may contain grease or oil, and chemical contaminations, such as biocide residues.

It is precisely at these critical spots that the use of the right wipe, especially its physical properties, determines the cleaning success. For cost reasons, the time needed for this should not be neglected. The cleaning efficiency – i.e. the time required for a required cleaning success – is a significant factor in the overall cost consideration.

Interesting facts about cleanroom wipes

In this respect, it seems logical that the requirements for a cleanroom wipe are much higher than those for a conventional wipe.
Thus, the main distinguishing features are not only in the material, but also in the fact that

- cleanroom wipes are manufactured under cleanroom conditions
- cleanroom wipes are additionally treated after the manufacturing process, if necessary by special decontamination procedures in cleanroom laundries
- cleanroom wipes for applications in sterile areas are – if required – sterilised.

The first observation applies to the different materials used to manufacture cleanroom wipes.

The paradox is that, depending on the choice of material, the surface to be cleaned and the impurities to be removed, we run the risk of creating again contamination during the cleaning process, which we actually try to avoid.

CONCLUSION

The right choice of cleanroom wipes not only reduces the amount of contamination carried in cleanrooms, but also increases the cleaning efficiency. In addition, the time saved can have a positive effect on overall costs.

The following questions are of decisive importance for the right choice of cleanroom wipes:

- What are the cleanliness requirements of the respective manufacturing process (production in the application area)?
- Is it a wet or dry cleaning process?
- Which disinfectant or cleaning agent is used?
- Is a certain chemical resistance required?
- Which chemicals?
- Sterile or non-sterile environment?
- What are the characteristics of the surfaces to be cleaned?

The following materials are typically used in cleanrooms:

- polyester-cellulose mixture
- polyester
- polypropylene, polyamide, polyurethane foam

Possible special features:

- microfibre wipes
- saturated wipes (based on different materials)

The following materials are also used in special areas:

- cotton / rayon
- cellulose

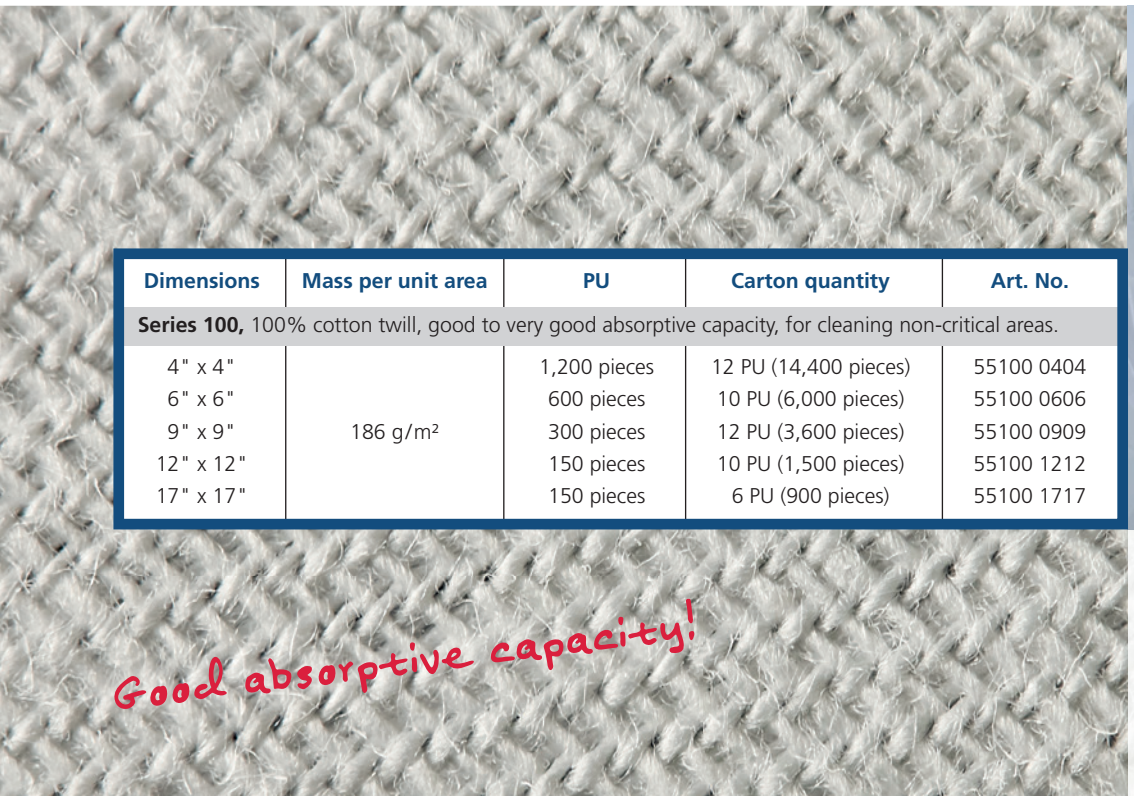
With our standard delivery program we cover most applications in the area of cleanroom wipes. For special cases, we also work together with well-known international wipe manufacturers, allowing to develop individual customer-specific solutions. All products from their product ranges can be obtained from us. Some special wipes from FG Clean Wipes, Contec, Kimberly-Clark and others are also presented in detail in this chapter.

In order to decide which cleaning wipe best meets your requirements, it is advisable to study the technical available data and to carry out a practical test at the workplace, respective or on the object.

We will be happy to advise you on the selection and will also provide you with samples for testing purposes!

Detailed technical data sheets are available on request at any time.

Cotton wipes



Dimensions	Mass per unit area	PU	Carton quantity	Art. No.
Series 100, 100% cotton twill, good to very good absorptive capacity, for cleaning non-critical areas.				
4" x 4"	186 g/m²	1,200 pieces	12 PU (14,400 pieces)	55100 0404
6" x 6"		600 pieces	10 PU (6,000 pieces)	55100 0606
9" x 9"		300 pieces	12 PU (3,600 pieces)	55100 0909
12" x 12"		150 pieces	10 PU (1,500 pieces)	55100 1212
17" x 17"		150 pieces	6 PU (900 pieces)	55100 1717

- relatively heat resistant
- neutral static charge
- good to very good absorbency with liquids
- largely resistant to acids and solvents

1" = 2.54 cm 4" = 10.16 cm / 6" = 15.24 cm / 9" = 22.86 cm / 12" = 30.48 cm / 18" = 45.72 cm

Cellulose wipes

Dimensions	Mass per unit area	PU	Carton quantity	Art. No.
Series 200, non-woven, 100 % cellulose (hemp/cellulose), hydroentangled. For cleaning non-critical areas.				
6" x 6"	17 g/m²	500 pieces	20 PU (10,000 pieces)	55200 0606
9" x 9"		500 pieces	25 PU (12,500 pieces)	55200 0909
12" x 12"		500 pieces	20 PU (10,000 pieces)	55200 1212
18" x 18"		500 pieces	10 PU (5,000 pieces)	55200 1818
Bemcot™ M-3 II, non-woven, 100% cellulose (Cupro), quarter folded, particularly suitable for the production of CDs and DVDs.				
10" x 10"	28 g/m²	100 pieces	30 PU (3,000 pieces)	52302M3

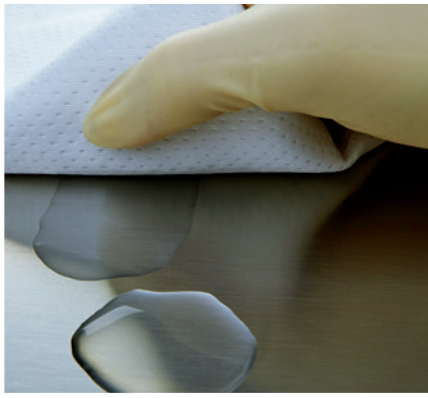
- high absorptive capacity in relation to mass per unit area
- low-cost
- neutral static charge

Product specific characteristics see overview matrix page 96–97.

Polyester-cellulose wipes

Dimensions	Mass per unit area	PU	Carton quantity	Art. No.
Series 300 ✪, non-woven, 45 % polyester / 55 % cellulose, hydroentangled, good absorptive capacity for liquids. For general cleaning, economical. Also available as validated sterile version.				
4" x 4"	68 g/m²	1.200 pieces	12 PU (14,400 pieces)	55300 0404
9" x 9"		300 pieces	12 PU (3,600 pieces)	55300 0909
12" x 12"		150 pieces	18 PU (2,700 pieces)	55300 1212
18" x 18"		75 pieces	10 PU (750 pieces)	55300 1818
Also available in rolls!				
Series 301 ✪, non-woven, 45 % polyester / 55 % cellulose, hydroentangled, good absorptive capacity for solvents and spills. Reduces the risk of residues after wet wiping with DI water or IPA solutions. Not as clean as series 300 and series 302. Also available in a gamma irradiated version.				
4" x 4"	68 g/m²	1.200 pieces	12 PU (14,400 pieces)	55301 0404
6" x 6"		300 pieces	20 PU (6,000 pieces)	55301 0606
9" x 9"		300 pieces	12 PU (3,600 pieces)	55301 0909
12" x 12"		150 pieces	10 PU (1,500 pieces)	55301 1212
18" x 18"		75 pieces	16 PU (1,200 pieces)	55301 1818
Also available in rolls!				
Series 301-IO ✪, non-woven, 45% polyester / 55% cellulose, hydro-entangled, cleaner and cheaper than 301 series, good absorptive capacity against solvents and spills. Reduces the risk of residues after wet wiping with DI water or IPA solutions. Also available as validated sterile version.				
9" x 9"	68 g/m²	300 pieces	10 PU (3,000 pieces)	55301-IO 0909
12" x 12"		150 pieces	10 PU (1,500 pieces)	55301-IO 1212
18" x 18"		75 pieces	10 PU (750 pieces)	55301-IO 1818
Series 302 ✪, non-woven, 45% polyester / 55% cellulose, hydroentangled. Significantly reduced particle release due to special fibre treatment, cleaner than Series 300 and Series 303. Good absorption of liquids. For cleaning in sensitive environments. Also available as validated sterile version.				
4" x 4"	68 g/m²	1.200 pieces	12 PU (14,400 pieces)	55302 0404
9" x 9"		300 pieces	12 PU (3,600 pieces)	55302 0909
12" x 12"		150 pieces	18 PU (2,700 pieces)	55302 1212
18" x 18"		75 pieces	10 PU (750 pieces)	55302 1818
Series 303, non-woven, 45% polyester / 55% cellulose, hydro-entangled, twill-like surface facilitating the cleaning process for coarser impurities. Also available in a gamma-irradiated version.				
4" x 4"	68 g/m²	1.200 pieces	12 PU (14,400 pieces)	55303 0404
9" x 9"		300 pieces	12 PU (3,600 pieces)	55303 0909
12" x 12"		150 pieces	18 PU (2,700 pieces)	55303 1212
Series 304-1, non-woven, 45% polyester / 55% cellulose, hydroentangled. Dyed blue to make liquids visible and for colour coding of work areas. Good absorptive capacity.				
4" x 4"	68 g/m²	1.200 pieces	12 PU (14,400 pieces)	55304-1 0404
9" x 9"		300 pieces	12 PU (3,600 pieces)	55304-1 0909
12" x 12"		150 pieces	10 PU (1,500 pieces)	55304-1 1212
Series 305, non-woven, 49 % polyester / 51 % cellulose, textured surface. Good absorptive capacity for liquids and particles with satisfactory abrasion resistance.				
4" x 4"	61 g/m²	200 pieces	48 PU (9,600 pieces)	55305 0404
9" x 9"		200 pieces	12 PU (2,400 pieces)	55305 0909
12" x 12"		100 pieces	18 PU (1,800 pieces)	55305 1212
18" x 18"		50 pieces	16 PU (800 pieces)	55305 1818
Series 309, non-woven, 45 % polyester / 55 % cellulose, hydroentangled. Lightweight, absorbent, very economical.				
9" x 9"	54 g/m²	300 pieces	14 PU (4,200 pieces)	55309 0909
18" x 18"		75 pieces	12 PU (900 pieces)	55309 1818
Also available in rolls!				

✪ **Tested at the Fraunhofer IPA institute, Stuttgart**



- good absorptive capacity
- relatively low particle emission
- good price-performance ratio
- generally without adhesives/binders
- hydroentangled
- extremely versatile types and sizes

Hydroentangled polyester-cellulose wipes have a low content of soluble substances and metallic ions because usually no binders or surfactants are used in the manufacturing process.

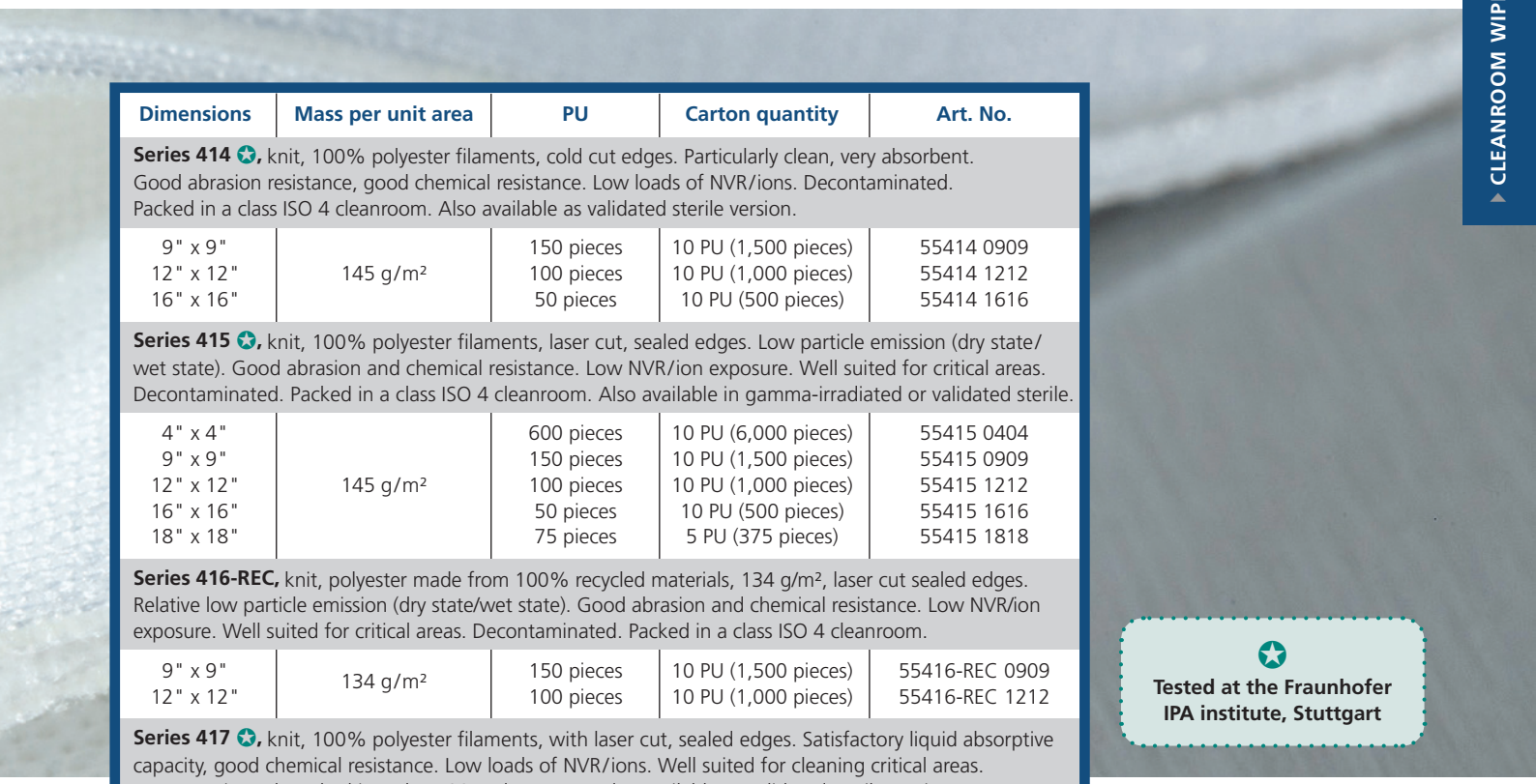
Polyester wipes

Product specific characteristics see overview matrix page 96–99.

Dimensions	Mass per unit area	PU	Carton quantity	Art. No.
Series 401, non-woven, 100% polyester, hydroentangled, particularly Soft touch. For cleaning scratch-sensitive surfaces. Very low particle emission, low NVR/ion load.				
4" x 4"	68 g/m²	1,200 pieces	12 PU (14,400 pieces)	55401 0404
6" x 6"		300 pieces	15 PU (4,500 pieces)	55401 0606
9" x 9"		300 pieces	8 PU (2,400 pieces)	55401 0909
12"x 12"		150 pieces	16 PU (2,400 pieces)	55401 1212
Series 406, knit, 100% polyester, 136 g/m². Highly abrasion resistant. Not decontaminated.				
4"x 4"	136 g/m²	600 pieces	4 PU (2,400 pieces)	55406 0404
9" x 9"		150 pieces	5 PU (750 pieces)	55406 0909
12"x 12"		100 pieces	4 PU (400 pieces)	55406 1212
Series 407, interlock knit, 100% polyester filaments, 105 g/m². Versatile, not decontaminated.				
9" x 9"	105 g/m²	150 pieces	12 PU (1,800 pieces)	55407 0909
Series 410 ✪, knit, 100% polyester filaments, double layer, laser sealed edges, hence extremely low self-emission of particles. Low loads of NVR/ions. Very good absorptive capacity. Decontaminated. Packed in a class ISO 4 cleanroom. Also available as gamma-irradiated version.				
4" x 4"	251 g/m²	300 pieces	12 PU (3,600 pieces)	55410 0404
9" x 9"		100 pieces	10 PU (1,000 pieces)	55410 0909
12" x 12"		100 pieces	5 PU (500 pieces)	55410 1212
12" x 6"		100 pieces	10 UV (1,000 pieces)	55410 1206
16" x 6"		100 pieces	8 UV (800 pieces)	55410 1606
bulk-packed versions:				
12" x 12"	251 g/m²	100 pieces	4 PU (400 pieces)	55410-bulk 1212
16" x 16"		100 pieces	5 PU (500 pieces)	55410-bulk 1616
Series 410-IO, Series 410-IO, knit, 100% polyester filaments, double layer. As series 410, but less expensive. Laser sealed edges. Very good absorptive capacity, abrasion resistant. Low loads of NVR/ions. Decontaminated. Packed in a class ISO 4 cleanroom. Also available as validated sterile version.				
9" x 9"	250 g/m²	50 pieces	10 PU (500 pieces)	55410-IO 0909
12" x 12"		50 pieces	10 PU (500 pieces)	55410-IO 1212
16" x 16"		25 pieces	10 PU (250 pieces)	55410-IO 1606
Series 410-AF ✪, knit, 100% polyester filaments, double layer, ultrasonic-cut and sealed edges, hence extremely low self-emission of particles. Low loads of NVR/ions. Very good absorptive capacity. Decontaminated. Packed in a class ISO 4 cleanroom.*				
4" x 4"	260 g/m²	300 pieces	8 PU (2,400 pieces)	55410-AF 0404
9" x 9"		100 pieces	10 PU (1,000 pieces)	55410-AF 0909
Also available as loose packed version 55410AF-bulk in 4" x 4", 9" x 9", 12" x 12", 25" x 25"!				

- low particle emission
- softness
- robustness
- gamma irradiated or validated sterile available

NVR = non-volatile residues



Dimensions	Mass per unit area	PU	Carton quantity	Art. No.
Series 414 ✪, knit, 100% polyester filaments, cold cut edges. Particularly clean, very absorbent. Good abrasion resistance, good chemical resistance. Low loads of NVR/ions. Decontaminated. Packed in a class ISO 4 cleanroom. Also available as validated sterile version.				
9" x 9" 12" x 12" 16" x 16"	145 g/m²	150 pieces 100 pieces 50 pieces	10 PU (1,500 pieces) 10 PU (1,000 pieces) 10 PU (500 pieces)	55414 0909 55414 1212 55414 1616
Series 415 ✪, knit, 100% polyester filaments, laser cut, sealed edges. Low particle emission (dry state/ wet state). Good abrasion and chemical resistance. Low NVR/ion exposure. Well suited for critical areas. Decontaminated. Packed in a class ISO 4 cleanroom. Also available in gamma-irradiated or validated sterile.				
4" x 4" 9" x 9" 12" x 12" 16" x 16" 18" x 18"	145 g/m²	600 pieces 150 pieces 100 pieces 50 pieces 75 pieces	10 PU (6,000 pieces) 10 PU (1,500 pieces) 10 PU (1,000 pieces) 10 PU (500 pieces) 5 PU (375 pieces)	55415 0404 55415 0909 55415 1212 55415 1616 55415 1818
Series 416-REC, knit, polyester made from 100% recycled materials, 134 g/m², laser cut sealed edges. Relative low particle emission (dry state/wet state). Good abrasion and chemical resistance. Low NVR/ion exposure. Well suited for critical areas. Decontaminated. Packed in a class ISO 4 cleanroom.				
9" x 9" 12" x 12"	134 g/m²	150 pieces 100 pieces	10 PU (1,500 pieces) 10 PU (1,000 pieces)	55416-REC 0909 55416-REC 1212
Series 417 ✪, knit, 100% polyester filaments, with laser cut, sealed edges. Satisfactory liquid absorptive capacity, good chemical resistance. Low loads of NVR/ions. Well suited for cleaning critical areas. Decontaminated. Packed in a class ISO 4 cleanroom. Also available as validated sterile version.				
9" x 9"	125 g/m²	150 pieces	10 PU (1,500 pieces)	55417 0909
Series 418 ✪, knit, 100% polyester filaments, cold cut edges. Above average absorptive capacity, very robust, good abrasion resistance. Very low particle emission (dry state/wet state), Low loads of NVR/ions. Good chemical resistance. Suitable for cleaning critical areas. Decontaminated. Packed in a class ISO 4 cleanroom. Also available as validated sterile version.				
9" x 9" 12" x 12"	175 g/m²	150 pieces 100 pieces	10 PU (1,500 pieces) 10 PU (1,000 pieces)	55418 0909 55418 1212
Anticon 100® StandardWeight™, interlock knit, 100% polyester, cold cut edges. Robust, very low particle emission, good absorptive capacity, chemical resistant. Wide range of applications. Decontaminated. Packed in a class ISO 4 cleanroom.				
9" x 9" 12" x 12"	120 g/m²	150 pieces 100 pieces	8 PU (1,200 pieces) 4 PU (400 pieces)	51MI-495352 0909 51MI-495352 1212
StatZorb®, interlock knit, 98% PES filaments / 2% PA/C fibres. Antistatic, low particulate emission due to sealed edges. Abrasion resistant, chemical resistant. Decontaminated. Packed in a class ISO 4 cleanroom.				
9" x 9"	135 g/m²	150 pieces	12 PU (1,800 pieces)	51344

* Also available as gamma-iradiated version.

✪ **Tested at the Fraunhofer IPA institute, Stuttgart**

- satisfactory to very good absorptive capacity
- relatively low particle emission
- good price-performance ratio
- gamma irradiated or validated sterile available

CLEAN GREENCYCLE™ by dastex

Series 416-REC

Cleanroom wipes for special requirements

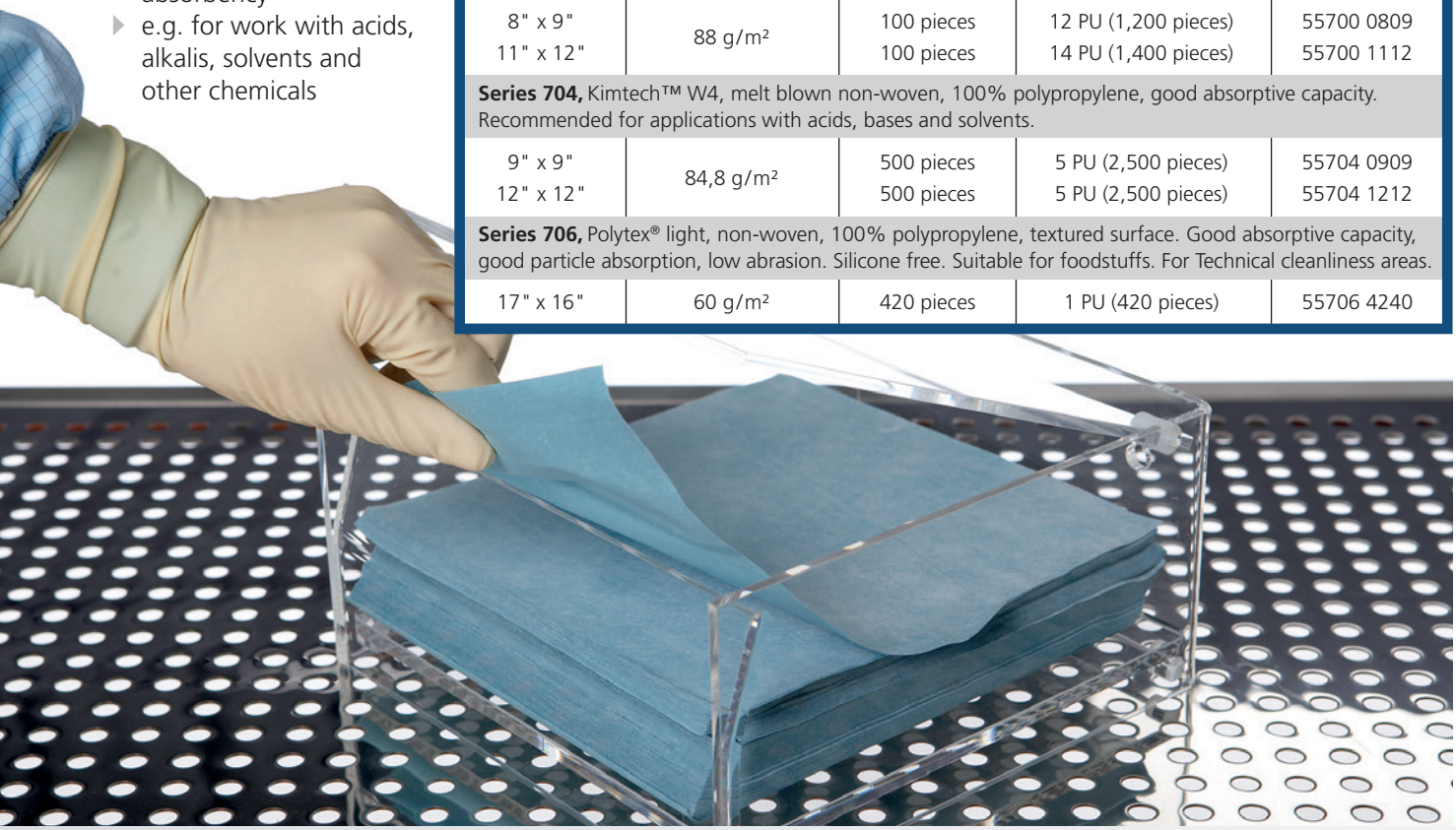
- adequate to good absorptive capacity
- low abrasion
- soft grip

Product specific characteristics see overview matrix page 98 – 99.

* Also available as gamma-irradiated version.

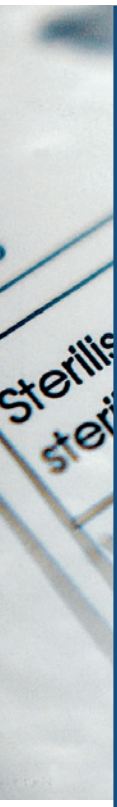
- e.g. especially high absorbency
- e.g. for work with acids, alkalis, solvents and other chemicals

Dimensions	Mass per unit area	PU	Carton quantity	Art. No.
Series 400-AF ✪, microfibre non-woven, 70% polyester/30% polyamide, water jet consolidated. Cold cut edges. Very good abrasion/tear resistance. Adequate absorptive capacity in relation to surface weight. Soft touch, for cleaning scratch sensitive surfaces. Free of adhesives and binders.*				
9" x 10"	60 g/m²	300 pieces	12 PU (3,600 pieces)	55400-AF
Series 425 ✪, microfibre knit, 70% polyester/30% polyamide, laser-sealed edges. Very clean and tear resistant, good absorptive capacity, high cleaning efficiency. Low loads of NVR/ions. For cleaning sensitive surfaces. Especially suitable for critical areas. Decontaminated. Packed in a class ISO 4 cleanroom. Also available in gamma-irradiated or validated sterile.				
9" x 9" 12" x 12" 12" x 16"	190 g/m²	100 pieces 50 pieces 50 pieces	20 PU (2,000 pieces) 20 PU (1,000 pieces) 16 PU (800 pieces)	55425 2323 55425 3030 55425 3040
Series 428 ✪, knit, 100% polyester, microfibre like, laser sealed edges. Good absorptive capacity and chemical resistance. Low loads of NVR/ions. Ideal for removing particles, greasy films and fingerprints. Especially suitable for cleaning critical areas. Decontaminated. Packed in a class ISO 4 cleanroom. Also available as validated sterile version.				
9" x 9" 12" x 12"	155 g/m²	150 pieces 100 pieces	10 PU (1,500 pieces) 10 PU (1000 pieces)	55428 0909 55428 1212
Clino® One Way Profi, single-use wipe, 100% microfibre fabric (80% PES/20% PA), ultrasonic-sealed edges. Very good cleaning performance, even with greasy soiling. Resistant to chemicals. Washed in a cleanroom laundry, packed in an ISO 5 class environment. Low ionic/metallic contamination.				
12" x 12"	100 g/m²	150 pieces	10 PU (1,500 pieces)	55429
Clino® One Way Premium, single-use wipe knitted from 100% microfibre (100% PES), laser sealed edges. Chemical resistance, very low emission of particles, fibres and extractable substances. Non-abrasive, residue-free dirt absorption. Washed in a cleanroom laundry, packaged in a class ISO 5 environment. Low loads of ionic/metallic contaminants.				
12" x 12"	210 g/m²	150 pieces	10 PU (1,500 pieces)	55430
Series 700 ✪, three layer non-woven, 2 polypropylene outer layers around a highly absorbent cellulose layer, good for liquid storage, outer layers remain largely dry. Good tear resistance. Recommended for applications with acids.				
8" x 9" 11" x 12"	88 g/m²	100 pieces 100 pieces	12 PU (1,200 pieces) 14 PU (1,400 pieces)	55700 0809 55700 1112
Series 704, Kimtech™ W4, melt blown non-woven, 100% polypropylene, good absorptive capacity. Recommended for applications with acids, bases and solvents.				
9" x 9" 12" x 12"	84,8 g/m²	500 pieces 500 pieces	5 PU (2,500 pieces) 5 PU (2,500 pieces)	55704 0909 55704 1212
Series 706, Polytex® light, non-woven, 100% polypropylene, textured surface. Good absorptive capacity, good particle absorption, low abrasion. Silicone free. Suitable for foodstuffs. For Technical cleanliness areas.				
17" x 16"	60 g/m²	420 pieces	1 PU (420 pieces)	55706 4240



Sterile dry wipes

For the pharmaceutical industry and its related sectors



Dimensions	Mass per unit area	PU	Carton quantity	Art. No.
Series 300 ✪, non-woven, 45% polyester / 55% cellulose, hydro-entangled, good liquid absorptive capacity. For general cleaning. Economical. Validated sterile.*				
9" x 9" 12" x 12" 18" x 18"	68 g/m²	150 pieces (6 x 25) 150 pieces (6 x 25) 75 pieces (3 x 25)	12 PU (1,800 pieces) 7 PU (1,050 pieces) 5 PU (375 pieces)	57300 0909 57300 1212 57300 1818
Serie 301-IO, non-woven, 45% polyester / 55% cellulose, hydro-entangled, cleaner and cheaper than 301 series, good absorptive capacity against solvents and spills. Reduces the risk of residues after wet wiping with DI water or IPA solutions. Validated sterile.*				
9" x 9" 12" x 12"	68 g/m²	100 pieces 100 pieces	10 PU (1,000 pieces) 10 PU (1,000 pieces)	57301-IO-VS 0909 57301-IO-VS 1212
Series 302, non-woven, 45% polyester / 55% cellulose, hydroentangled, significantly reduced particle release due to special fibre treatment, cleaner than series 300 and 303. Good absorption of liquids. For cleaning sensitive areas. Validated sterile.*				
6" x 6" 9" x 9" 12" x 12" 18" x 18"	68 g/m²	200 pieces (8 x 25) 150 pieces (6 x 25) 150 pieces (6 x 25) 75 pieces (3 x 25)	10 PU (2,000 pieces) 12 PU (1,800 pieces) 4 PU (600 pieces) 5 PU (375 pieces)	57302 0606 57302 0909 57302 1212 57302 1818
Series 303, non-woven, 45% polyester / 55% cellulose, hydroentangled, twill-like surface facilitating the cleaning process in case of heavy soiling. Gamma irradiated.*				
9" x 9"	68 g/m²	300 pieces	12 PU (3,600 pieces)	57303 0909
Series 410-AF, knit, 100% polyester filaments, double layer, ultrasonically cut, sealed edges, resulting in extremely low particle self-emission. Low loads of NVR/ions. Very good absorptive capacity. Decontaminated. Packaged in a class ISO 4 cleanroom. Gamma irradiated.*				
9" x 9" 12" x 12"	260 g/m²	100 pieces (10 x 10) 100 pieces (10 x 10)	1 PU (100 pieces) 8 PU (800 pieces)	57410-AF-5S 0909 57410-AF 1212
Series 410-IO, knit, 100% polyester filaments, double layer. As series 410, but less expensive. Laser sealed edges. Very good absorptive capacity, abrasion resistant. Low loads of NVR/ions. Decontaminated. Packed in a class ISO 4 cleanroom. Validated sterile.*				
9" x 9" 12" x 12"	250 g/m²	50 pieces (5 x 10) 50 pieces (5 x 10)	10 PU (500 pieces) 10 PU (500 pieces)	57410-IO-VS 0909 57410-IO-VS 1212
Series 410-bulk, knit, 100% PES filaments, double layer, laser sealed edges. Extremely low particulate emission, Low loads of NVR/ions. Very good absorptive capacity. Decontaminated. Bulk packed in a class ISO 4 cleanroom. Gamma irradiated.*				
12" x 12"	250 g/m²	100 pieces	3 PU (300 pieces)	57410-bulk 1212
Series 414, knit, 100% polyester filaments, cold cut edges. Particularly clean, very absorbent. Good abrasion resistance, good chemical resistance. Low loads of NVR/ions. Decontaminated. Packed in a class ISO 4 cleanroom. Validated sterile.*				
9" x 9" 12" x 12"	145 g/m²	100 pieces (10 x 10) 100 pieces (10 x 10)	10 PU (1,000 pieces) 10 PU (1,000 pieces)	57414-VS 0909 57414-VS 1212
Series 415, knit, 100% PES filaments, laser cut and sealed edges. Very low particle emission (dry state/ wet state). Good abrasion and chemical resistance. Low loads of NVR/ions. Well suited for critical areas. Decontaminated. Packed in a class ISO 4 cleanroom. Gamma irradiated or validated sterile.*				
9" x 9" 12" x 12" 9" x 9" 12" x 12"	145 g/m²	150 pieces 100 pieces 100 pieces (10 x 10) 100 pieces (10 x 10)	10 PU (1,500 pieces) 10 PU (1,000 pieces) 10 PU (1,000 pieces) 10 PU (1,000 pieces)	57415 0909 57415 1212 57415 0909 57415 1212

* Also available as non-sterile version!

Product specific characteristics see overview matrix page 96–99.

Sterile dry wipes

For the pharmaceutical industry and its related sectors

Product specific characteristics see overview matrix page 96–99.

Dimensions	Mass per unit area	PU	Carton quantity	Art. No.
Series 417, knit, 100% polyester filaments, with laser cut, sealed edges. Satisfactory liquid absorptive capacity, good chemical resistance. Low loads of NVR/ions. Well suited for cleaning critical areas. Decontaminated. Packed in a class ISO 4 cleanroom. Validated sterile.*				
9" x 9" 12" x 12"	125 g/m²	100 pieces 100 pieces	10 VE (1.000 pieces) 10 VE (1.000 pieces)	57417-VS 0909 57417-VS 1212
Series 418, knit, 100% polyester filaments, cold cut edges. Above average absorptive capacity, very robust, good abrasion resistance. Very low particle emission (dry state/wet state), Low loads of NVR/ions. Good chemical resistance. Suitable for cleaning critical areas. Decontaminated. Packed in a class ISO 4 cleanroom. Validated sterile.*				
9" x 9" 12" x 12"	175 g/m²	100 pieces 100 pieces	10 VE (1.000 pieces) 10 VE (1.000 pieces)	57418-VS 0909 57418-VS 1212
Series 425, microfibre knit, 70% PES/30% PA, laser sealed edges. Very clean and tear resistant, good absorptive capacity, high cleaning efficiency. Low loads of NVR/ions. Soft touch, for cleaning sensitive surfaces. Especially suitable for critical areas. Decontaminated. Packed in a class ISO 4 cleanroom. Gamma irradiated or validated sterile.*				
12" x 12" 9" x 9" 12" x 12"	190 g/m²	50 pieces 100 pieces 100 pieces	16 VE (800 pieces) 10 VE (1.000 pieces) 10 VE (1.000 pieces)	57425-50 57425-VS 0909 57425-VS 1212
Series 428, knit, 100% polyester, microfibre like, laser sealed edges. Good absorptive capacity and chemical resistance. Low loads of NVR/ions. Ideal for removing particles, greasy films and fingerprints. Especially suitable for cleaning critical areas. Decontaminated. Packed in a class ISO 4 cleanroom. Validated sterile.*				
9" x 9" 12" x 12"	155 g/m²	100 pieces 100 pieces	10 VE (1.000 pieces) 10 VE (1.000 pieces)	57428-VS 0909 57428-VS 1212

* Also available as non-sterile version!

Other dry wipes are available sterile/gamma-irradiated on request or also available in other packaging sizes!
For gamma irradiated wipes, products made of polyester-cellulose compounds have successfully established themselves on the market.
Knitted wipes made of 100 % polyester can be autoclaved by the user.

Advantages

- ready to use immediately
- usually subpacked in a PE bag of 25 pieces
- several bags bundled in an additional outer PE bag and gamma irradiated by carton
- ndicator point on each original package for quality assurance
- each batch is documented with a lot number and a corresponding irradiation certificate to ensure traceability of proper irradiation

Saturated wipes sterile and non-sterile

Packed in a resealable pouch bag

Sterile wipes

Dimensions	Mass per unit area	sterile	PU	Carton quantity	Art. No.
PROSAT® Sterile™ Wipes, meltblown non-woven, 100% polypropylene, saturated with 70% IPA / 30% DI water. Sterilisation process: Electron beam radiation.					
9" x 11"	36 g/m²	yes	1,440 pieces	1 PU (48 pouches of 30 wipes)	59801
PROSAT® Sterile™ PS-7030IR, non-woven, 100% PES, saturated with 70% IPA / 30% DI water. Validated sterile.					
9" x 9"	69 g/m²	yes	800 pieces	1 PU (40 pouches of 20 wipes)	59803
PROSAT® Sterile™ Low Endotoxin, knit, 100% polyester, saturated with 70% IPA / 30% WFI water, with sealed edges. < 1 endotoxine unit/wipe. Triple bagged. Validated sterile.					
9" x 9" 12" x 12"	140 g/m²	yes	550 pieces 450 pieces	1 PU (55 pouches of 10 wipes) 1 PU (15 pouches of 30 wipes)	59805 59805-02
Series 909, non-woven, 45% polyester / 55% cellulose, soaked in 70% IPA / 30% DI water. Validated sterile.					
9" x 9"	54 g/m²	yes	810 pieces	1 PU (27 pouches of 30 wipes)	59909
PROSAT® PSC20005, non-woven, 46% PES / 54% CEL, saturated with 70% IPA / 30% DI water. Validated sterile.					
9" x 11"	53 g/m²	yes	1,400 pieces	1 PU (28 pouches of 50 wipes)	59808

Product specific characteristics see overview matrix page 96–99.

Non-sterile wipes

Dimensions	Mass per unit area	sterile	PU	Carton quantity	Art. No.
Series 707, meltblown non-woven, 100% polypropylene, 37 g/m², saturated with 70% IPA / 30% DI water.					
9" x 11"	37 g/m²	no	720 pieces	1 PU (24 pouches à 30 wipes)	58707
PROSAT® Wipes, on-woven, 100% polypropylene, saturated with 70% IPA / 30% DI water (USP grade). Other packaging units and mixing ratios available.					
9" x 11"	36 g/m²	no	1,500 pieces	1 PU (50 pouches à 30 wipes)	58801
PROSAT® Wipes PS-850, non-woven, 100% polypropylene, saturated with 70% IPA / 30% DI water (IPA with USP grade > 99% purity). Other sizes available on request.					
8" x 8"	31 g/m²	no	2,500 pieces	1 PU (50 pouches à 50 wipes)	58802

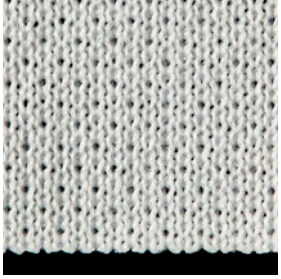
Application area

- wherever a quick and practical application is required

Advantages

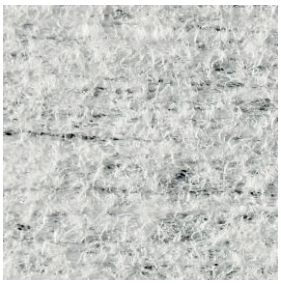
- ready to use solution in consistent saturation
- needlessness of additional cleaning agents in the form of bottles, sprays etc.
- very easy handling: time-consuming and cost intensive pre-work is redundant
- storage costs for cleaning products and timeconsuming additional work such as decanting, spraying and saturating are dropped
- health advantage: no harmful alcohol spray in the air

Please refer to our website for the registration numbers of the biocidal products offered, which are subject to information.



Series 417 ★

light knitted polyester wipe with sealed edges, typical surface structure

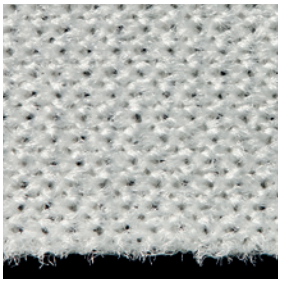


Series 300 ★

polyester-cellulose non-woven fabric, typical surface structure

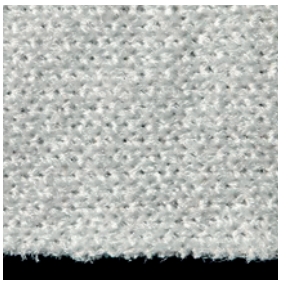
Series 401

100% polyester non-woven fabric, typical surface structure



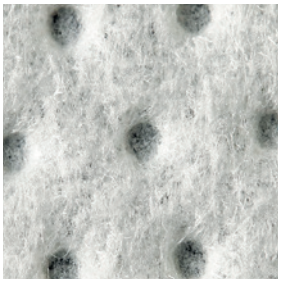
Series 414 ★

classic knitted polyester wipe with cold cut edges, typical surface structure



Series 418 ★

absorbent knitted polyester wipe with cold cut edges, typical surface structure



Series 700 ★

3-layer fabric with a middle cellulose layer with a polypropylene upper and under side, typical surface structure

Series 410 ★

double layer knitted polyester wipe with sealed edges, typical surface structure

Series 428 ★

extra-fine mesh polyester wipe with sealed edges, typical surface structure

Series 100

cotton wipe, typical surface structure

Series 415 ★

knitted high quality polyester wipe with sealed edges, typical surface structure

Further independent tests on cleanroom wipes

In order to continue to provide our customers with qualified advice in the product area of cleanroom wipes, **Dastex** has commissioned an extensive study for a larger selection of wipes from the internationally renowned Fraunhofer Institute for Manufacturing Engineering and Automation IPA (Stuttgart).

The two main focuses were:

The comparability of technical data

From the user's point of view, it is always particularly difficult to compare the technical data of different suppliers and manufacturers, because the parameters shown there usually do not match 1:1. The reason for this are different measuring methods and units of measurement. By means of a comparative study, the differences between different wipes can now actually be presented and proven plausible for the user.

More practical tests (test methods)

Particularly on the sensitive topic of "possible self-particle emission by cleanroom wipes" there was justified criticism of the practical suitability of some measurement methods previously used as a reference. This new survey was intended to remedy this situation and further refine and optimise existing methods. The researches were carried out on the basis of the VDI Guideline 2083, Part 9.2: the knowledge gained from them is in line with this guideline.

The key aspects of the survey were the particle emission of cleanroom wipes in dry condition, the absorption capacity, the resistance to mechanical stress and the cleaning efficiency for defined wipes. Especially for the semiconductor sector, the issue of outgassing behaviour for defined wipes was also tested and analysed.

CERTIFICATES FRAUNHOFER IPA

Further information as well as extracts from the relevant studies are available on request!

Overview matrix

The red article number indicates the corresponding sterile / gamma-irradiated version for the respective basic wipes!

	testet	derived from the product properties
very good	✱✱✱✱	✱✱✱✱
good	✱✱✱	✱✱✱
satisfying	✱✱	✱✱
adequate	✱	✱
in-between	✱	✱

	Chapt.	Art. No.	Wipe
COTTON	5.2	**55100**	**Series 100**, 100% cotton twill, good to very good absorptive capacity, for cleaning non-critical areas.
CELLU-LOSE	5.3	**55200**	**Series 200**, non-woven, 100% cellulose (hemp/cellulose), hydroentangled, for cleaning non-critical areas.
	5.3	**52302M3**	**Bemcot™ M-3 II**, non-woven, 100% CEL (Cupro), quarter folded, particularly suitable for CD and DVD production.
POLYESTER-CELLULOSE	5.4/5.7	**55300 / 57300**	**Series 300** ✪, non-woven, 45% polyester / 55% cellulose, hydroentangled, good liquid absorptive capacity. For general cleaning. Economical.
	5.4	**55301**	**Series 301** ✪, non-woven, 45% polyester / 55% cellulose, hydroentangled. Good absorptive capacity for detergents/spills. Reduces the risk of residues after wet wiping with DI water/IPA solutions.
	5.4/5.7	**55301-IO / 57301-IO**	**Series 301-IO** ✪, non-woven, 45% polyester / 55% cellulose, hydroentangled. Cleaner and cheaper than series 301, good solvent/spill absorptive. Reduces the risk of residues after wet wiping with DI water/IPA solutions.
	5.4/5.7	**55302 / 57302**	**Series 302** ✪, non-woven, 45% polyester / 55% cellulose, hydroentangled. Significantly reduced particle release due to special fibre treatment, very clean. Good absorption of liquids. For cleaning sensitive areas.
	5.4/5.7	**55303 / 57303**	**Series 303**, non-woven, 45% polyester / 55% cellulose, hydroentangled. Twill-like surface for improved cleaning in case of coarse impurities.
	5.4	**55304-1**	**Series 304-1**, non-woven, 45% polyester / 55% cellulose, hydroentangled. Dyed blue to make liquids visible and for colour coding of work areas. Good absorptive capacity.
	5.4	**55305**	**Series 305**, non-woven, 49% PES / 51% CEL, textured surface. Good absorptive capacity both for liquids and particles. Good abrasion resistance.
	5.4	**55309**	**Series 309**, non-woven, 45% polyester / 55% cellulose, hydroentangled. Lightweight, absorbent, very economical.
POLYESTER	5.5	**55401**	**Series 401**, non-woven, 100% PES, hydroentangled, particularly soft touch. Very low particle emission, low NVR/ion load. Cleaning of scratch-sensitive surfaces.
	5.5	**55406**	**Series 406**, knit, 100% polyester, 136 g/m², highly abrasion resistant. Not decontaminated.
	5.5	**55407**	**Series 407**, interlock knit, 100% polyester, 105 g/m², versatile. Not decontaminated.
	5.5/5.7	**55410 / 57410-bulk**	**Series 410** ✪, knit, 100% polyester filaments, double layer, laser sealed edges, hence extremely low particle emission. Low NVR/ions exposure. Very good absorptive capacity. Decontaminated. Packed in a class ISO 4 cleanroom.
	5.5/5.7	**55410-AF / 57410-AF**	**Series 410-AF** ✪, knit, 100% polyester filaments, double-layered as series 410, slightly cheaper. Ultrasonically cut and sealed edges. Extremely low particle emission and NVR/ions exposure. Decontaminated. Packed in a class ISO 4 cleanroom.
	5.5/5.7	**55410-IO / 57410-IO**	**Series 410-IO**, knit, 100% polyester filaments, double layer as series 410, cheaper. Laser sealed edges. Very good absorptive capacity, abrasion resistant. Low NVR/ions exposure. Decontaminated. Packed in a class ISO 4 cleanroom.
	5.5	**55414 / 57414**	**Series 414** ✪, knit, 100% polyester filaments, cold cut edges. Particularly clean, highly absorbent. High abrasion resistance, good chemical resistance. Low levels of NVR/ions. Decontaminated. Packed in a class ISO 4 cleanroom.
	5.5/5.7	**55415 / 57415**	**Series 415** ✪, knit, 100% polyester filaments, 145 g/m², laser cut and sealed edges. Low particle emission (dry state/ wet state). Good abrasion and chemical resistance. Low NVR/ions exposure. Well suited for critical areas. Decontaminated. Packaged in a class ISO 4 cleanroom.
	5.5	**55416-REC**	**Series 416-REC**, knit, polyester made from 100% recycled materials, 134 g/m², laser cut sealed edges. Relative low particle emission (dry state/wet state). Good abrasion and chemical resistance. Low NVR/ion exposure. Well suited for critical areas. Decontaminated. Packed in a class ISO 4 cleanroom.
	5.5/5.7	**55417 / 57417**	**Series 417** ✪, knit, 100% polyester filaments, 125 g/m², with laser-cut, sealed edges. Good absorptive capacity, good chemical resistance. Low NVR/ions exposure. Well suited for cleaning critical areas. Decontaminated. Packed in a class ISO 4 cleanroom.








Particle emission in the dry state tested in reference to ISO 9073-10	Particle emission in the wet state tested according to IEST-RP-CC004.4	Abrasion resistance	Wet cleaning	Dry cleaning	Chemical stability	Electrostatic behaviour	Softness	Version		
								sealed edges	decontaminated	sterile available
★	★★	★★	★★★★	★★	★★★	★★★★	★★	–	–	–
★★	★★	★★	★	★	★★★	★★★★	★	–	–	–
★★	★★½	★★	★★	★	★★★★	★★★★	★	–	–	–
★★½	★★	★★	★★★	★★	★★½	★★★	★★	–	–	✓
★★★	★★	★★	★★★	★★	★★½	★★★	★★	–	–	–
★★★	★★½	★★	★★★	★★	★★½	★★★	★★	–	–	✓
★★★	★★½	★★	★★★	★★	★★½	★★★	★★	–	–	✓
★★½	★★	★★½	★★★½	★★	★★½	★★★	★★	–	–	✓
★★½	★★	★★	★★★	★★	★★½	★★★	★★	–	–	–
★★½	★★	★★	★★★	★★	★★½	★★★	★★	–	–	–
★	★	★★★	★★	★★	★★★	★★★	★★	–	–	–
★★★	★★★	★★½	★	★★★	★★★	★	★★★	–	–	–
★★	★★½	★★★★	★	★★★	★★★	★	★★★½	–	–	–
★★	★★½	★★★★	★	★★★	★★★	★	★★★½	–	–	–
★★★★	★★★½	★★★★	★★★★	★★★½	★★★½	★	★★★	✓	✓	✓
★★★★	★★★★	★★★★	★★★★	★★★★	★★★	★	★★★½	✓	✓	✓
★★★★	★★★½	★★★★	★★★★	★★★½	★★★½	★	★★★	✓	✓	✓
★★★	★★★½	★★★	★★	★★★	★★★½	★	★★★½	–	✓	✓
★★★	★★★★	★★★	★★	★★★★	★★★½	★	★★★½	✓	✓	✓
★★½	★★★½	★★★	★★	★★★★	★★★½	★	★★★½	✓	✓	–
★★★	★★★★	★★★	★★	★★★★	★★★½	★	★★★½	✓	✓	✓

Overview matrix

The red article number indicates the corresponding sterile / gamma-irradiated version for the respective basic wipes!

	testet	derived from the product properties
very good	✱✱✱✱	✱✱✱✱
good	✱✱✱	✱✱✱
satisfying	✱✱	✱✱
adequate	✱	✱
in-between	✱	✱

	Chapt.	Art. No.	Wipe
POLYESTER	5.5/5.7	**55418 / 57418**	**Series 418**, knit, 100% polyester filaments, cold cut edges. Above average absorbency, very robust, good abrasion resistance. Very low particulate emission (dry state/wet state). Low exposure to NVR/ions. Good chemical resistance. Suitable for cleaning critical areas. Decontaminated. Packed in a class ISO 4 cleanroom.
	5.5	**51MI-495352**	**Anticon 100® StandardWeight™**, interlock knit, 100% polyester, cold cut edges. Robust, very low particle emission, good absorptive capacity, chemical resistant. Wide range of applications. Decontaminated. Packed in a class ISO 4 cleanroom.
	5.5	**51344**	**StatZorb®**, interlock knit, 98% PES filaments/2% PA/C fibres. Antistatic, low particle emission, sealed edges, abrasion resistant, chemical resistant. Decontaminated. Packed in a class ISO 4 cleanroom.
SPECIAL REQUIREMENTS	5.6	**55400-AF**	**Series 400-AF**, microfibre non-woven, 70% polyester/30% polyamide, water-jet consolidated. Cold cut edges. Very good abrasion/tear resistance. Adequate absorptive capacity in relation to surface weight. Soft touch, for cleaning scratch-sensitive surfaces. No adhesives or binders.
	5.6/5.7	**55425 / 57425**	**Series 425**, Microfibre knit, 70% polyester/30% polyamide, laser-sealed edges. Very clean and tear-resistant, good absorptive capacity, high cleaning efficiency. Low NVR/ion exposure. Soft touch. For cleaning sensitive surfaces. Especially suitable for critical areas. Decontaminated. Packaged in a class ISO 4 cleanroom.
	5.6/5.7	**55428 / 57428**	**Series 428**, knit, 70% PES/30% PA, microfibre-like. Low NVR/ion exposure. Soft touch. For cleaning sensitive surfaces. Especially suitable for critical areas. Decontaminated. Packaged in a class ISO 4 cleanroom.
	5.6	**55429**	**Clino® One Way Profi**, woven disposable microfibre wipe (80% PES / 20% PA), ultrasonic-sealed edges. Very good cleaning performance, even with greasy soiling. Resistant to chemicals. Decontaminated. Packed in an ISO 5 class environment. Low content of ionic/metallic contaminants.
	5.6	**55430**	**Clino® One Way Premium**, knitted single-use wipe (100% PES microfibres), laser sealed edges. Chemical resistance, very low emission of particles, fibres, extractable substances. Non-abrasive. Absorptive of impurities without residue. Decontaminated. Packaged in an ISO 5 class environment. Low content of ionic/metallic contaminants.
	5.6	**55700**	**Series 700**, triple layer non-woven, 2 outers (PP), 1 middle highly absorbent (CEL), outer layers remain largely dry. Good tear resistance. For applications with acids.
	5.6	**55704**	**Series 704**, Kimtech™ W4, meltblown non-woven, 100% polypropylene. Good absorptive capacity. Recommended for applications with acids, bases and solvents.
	5.6	**55706**	**Series 706**, Polytex® light, non-woven, 100% polypropylene, structured surface. Silicone-free. For the Technical cleanliness zones.
SATURATED WIPES	5.8	**58707**	**Series 707**, meltblown nonwoven, 100% polypropylene, 37 g/m², saturated with 70% IPA / 30% DI water.
	5.8	**58801 / 59801**	**PROSAT® Wipes / PROSAT® Sterile™ Wipes**, non-woven, 100% PP, saturated with 70% IPA / 30% DI water (USP quality).
	5.8	**58802**	**PROSAT® Wipes PS-850**, non-woven, 100% PP, saturated with 70% IPA (purity grade > 99%) / 30% DI water.
	5.8	**59803**	**PROSAT® Sterile™ PS-7030IR**, non-woven, 100 % polyester, saturated with 70% IPA / 30% DI water. Validated sterile.
	5.8	**59805**	**PROSAT® Sterile™ Low Endotoxin**, knit, 100% polyester, sealed edges, saturated with 70% IPA / 30% DI water. Triple bagged. Validated sterile.
	5.8	**59808**	**PROSAT® PSC20005**, non-woven, 46% polyester/54% cellulose, saturated with 70% IPA / 30% DI water. Validated sterile.
	5.8	**59909**	**Series 909**, non-woven, 45% polyester / 55% cellulose, saturated with 70% IPA / 30% DI water. Validated sterile.

You will find more saturated wipes for disinfection in chapter 7!

Particle emission in the dry state tested in reference to ISO 9073-10	Particle emission in the wet state tested according to IEST-RP-CC004.4	Abrasion resistance	Wet cleaning	Dry cleaning	Chemical stability	Electrostatic behaviour	Softness	Version		
								sealed edges	decontaminated	sterile available
★★★½	★★★½	★★★½	★★★	★★★	★★★½	★	★★★½	–	✓	✓
★★★	★★★½	★★★	★★	★★★★	★★★	★	★★★	–	✓	–
★★★	★★★	★★★	★	★★★★	★★★	★★★	★★½	✓	✓	–
★★★	★★★	★★★★	★★	★★★	★★½	★	★★★½	–	–	–
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–	★★	★★★	★★★★	–	★★★★	★★★★	★★★	–	–	✓
–	★★	★★★	★★★★	–	★★★★	★★★★	★★★	–	–	✓

Product recommendations referring to cleanroom classes

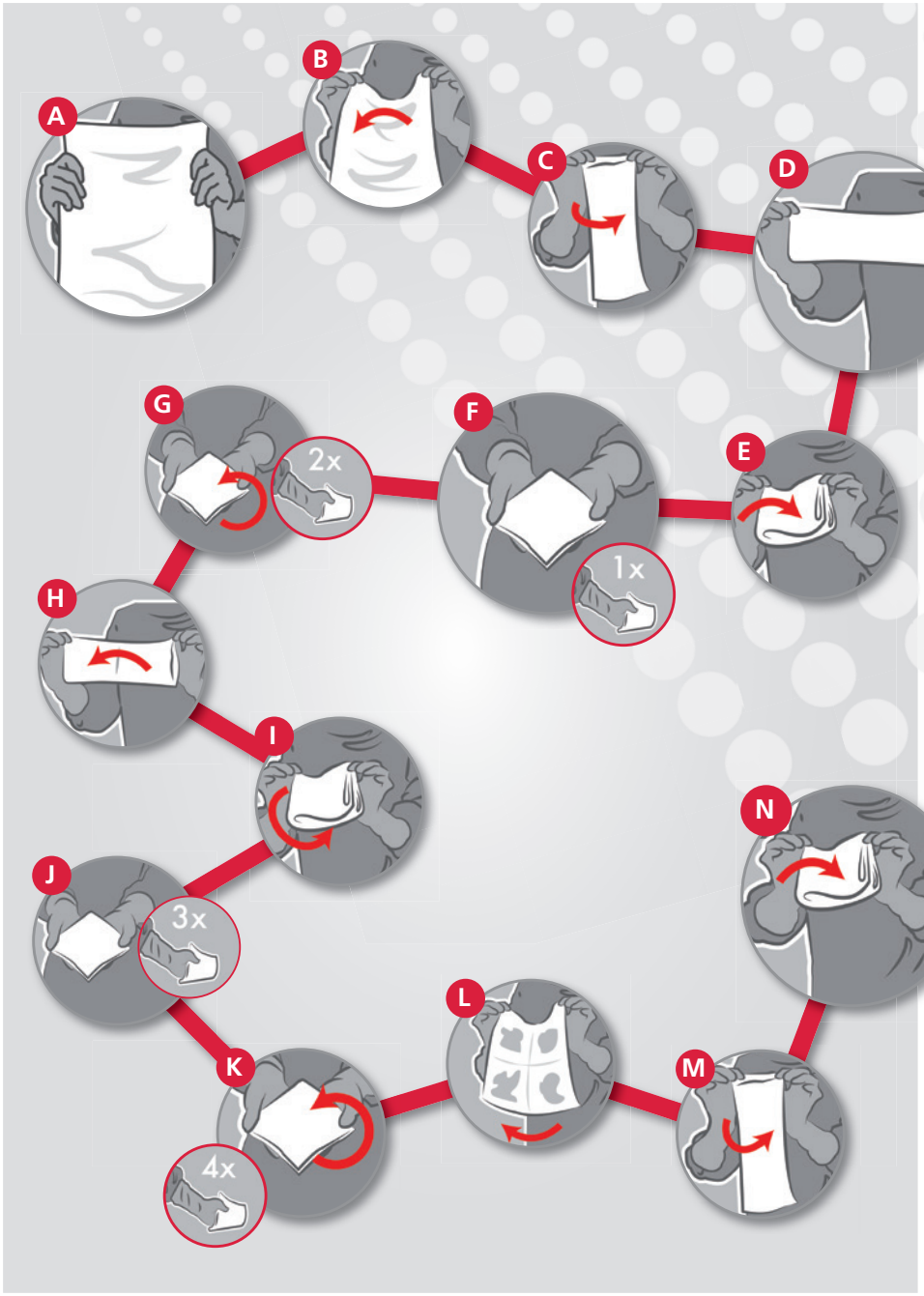
Recommendations (*) The red article number indicates the corresponding sterile/gamma-irradiated version for the respective basic wipes!

	Art. No.	Wipe	Cleanrooms and associated controlled environments – Part 1 Classification of air cleanliness by particle concentration EN ISO 14644-1						
			3	4	5	6	7	8	9
COTTON	55100	Series 100					■	■	■
CELLULOSE	55200	Series 200				■	■	■	■
	52302M3	Bemcot™ M-3 II				■	■	■	■
POLYESTER-CELLULOSE	55300 / 57300	Series 300				■	■	■	■
	55301	Series 301				■	■	■	■
	55301-IO / 57301-IO	Series 301-IO				■	■	■	■
	55302 / 57302	Series 302			■	■	■	■	■
	55303 / 57303	Series 303				■	■	■	■
	55304-1	Series 304-1				■	■	■	■
	55305	Series 305				■	■	■	■
	55309	Series 309						■	■
POLYESTER	55401	Series 401			■	■	■	■	■
	55406	Series 406				■	■	■	■
	55407	Series 407					■	■	■
	55410 / 57410-bulk	Series 410		■	■	■	■	■	■
	55410-AF / 57410-AF	Series 410-AF		■	■	■	■	■	■
	55410-IO / 57410-IO	Series 410-IO		■	■	■	■	■	■
	55414 / 57414	Series 414				■	■	■	■
	55415 / 57415	Series 415		■	■	■	■	■	■
	55416-REC	Series 416-REC			■	■	■	■	■
	55417 / 57417	Series 417		■	■	■	■	■	■
	55418 / 57418	Series 418			■	■	■	■	■
	51MI-495352	Anticon 100® StandardWeight™			■	■	■	■	■
	51344	StatZorb®				■	■	■	■
SPECIAL REQUIREMENTS	55400-AF	Series 400-AF			■	■	■	■	■
	55425 / 57425	Series 425		■	■	■	■	■	■
	55428	Series 428		■	■	■	■	■	■
	55429	Clino® One Way Profi			■	■	■	■	■
	55430	Clino® One Way Premium			■	■	■	■	■
	55700	Series 700				■	■	■	■
	55704	Series 704				■	■	■	■
	55706	Series 706						■	■
SATURATED WIPES	58707	Series 707			■	■	■	■	■
	58801 / 59801	PROSAT® Wipes / PROSAT® Sterile™ Wipes			■	■	■	■	■
	58802	PROSAT® Wipes PS-850			■	■	■	■	■
	59803	PROSAT® Sterile™ PS-7030IR							
	59805	PROSAT® Sterile™ Low Endotoxin							
	59808	PROSAT® PSC20005							
	59909	Series 909							
	59802-01	CONTEC® Critical Site® Sterile Wipes							

Of course, wipes that are used in ISO 5 areas can also be used in ISO 9 areas, but in this case the cost-effectiveness and usefulness should be considered.

	Hygiene zones (microbiological controlled areas) according to GMP				
low dust	A	B	C	D	E
■				■	■
■			■	■	■
■			■	■	■
■	■	■	■	■	■
■			■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
■			■	■	■
■			■	■	■
■				■	■
■			■	■	■
■			■	■	■
■				■	■
	■	■	■	■	■
	■	■	■	■	■
	■	■	■	■	■
■	■	■	■	■	■
	■	■	■	■	■
			■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
■			■	■	■
■			■	■	■
■			■	■	■
	■	■	■	■	■
■			■	■	■
■			■	■	■
■			■	■	■
■			■	■	■
■				■	■
■			■	■	■
■	■	■	■	■	■
■			■	■	■
	■	■			
	■	■			
	■	■			
	■	■			
	■	■			

A/B only for the sterile version



A well-tried instruction for fold and wipe technique

(*)

A one-to-one classification of cleanroom wipes to a cleanroom class according to ISO 14644-1 is not possible. Recommendations can only be made based on cleanroom specific requirements, e.g. "abrasion resistance" or "particle emission". In the VDI guidance 2083 Part 9.2 the user can find additional information.