

TechNote ST-1

TexWrite MP Products: Next Generation Cleanroom Stationery

TexWrite™ MP 10 was introduced in 1993 as a solution to cleanroom documentation needs in the semiconductor industry. The goal was to introduce a synthetic sheet which would eliminate cellulosic contamination and dramatically improve the particle generation characteristics inherent in latex-saturated papers. The product has been applauded by contamination control engineers as a bridge to the paperless cleanroom of the future.

TexWrite MP is a unique material with tremendous performance characteristics—sorptive yet waterproof, soft yet strong, printable and durable. This single-layer, air-filled polyolefin allows rapid penetration of inks and toners into the body of the sheet, forming strong anchor points within the substrate (MP products are 65% air).

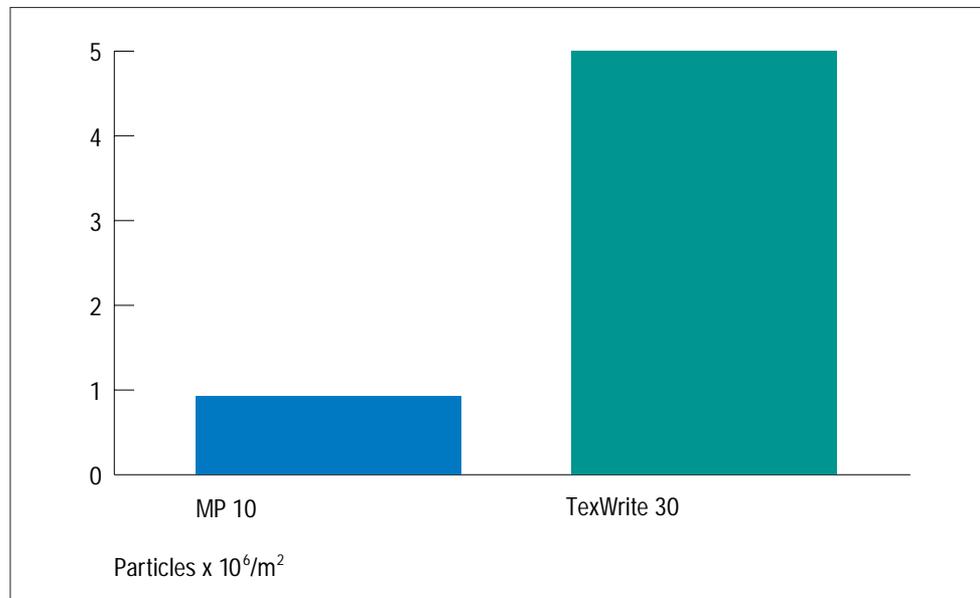
Ink and toner are well-known contaminants whose impact is substantially reduced through the use of MP products. Not only is the MP sheet cleaner, it holds the print components far more securely than latex products.

TexWrite MP 10 and MP 8 have solved a number of immediate problems:

- Cellulosic contamination
- Inkjet smearing on latex paper
- Elimination of lamination requirements

The primary benefits of MP products are low particle generation, excellent ink and toner entrapment and non-cellulosic behavior. Secondary benefits include recyclability, resolution in printing and durability wet or dry.

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*Figure 1
Particle measurement
comparison using LPC
particle measurement*

TexWrite MP 8

TexWrite MP 8 is an uncoated 8 mil (0.008") version of TexWrite MP 10. With an identical formulation, its contamination characteristics are similar in sheeted form. MP 8 is used in a variety of products including continuous form, labels and printed sheets. Its ability to cleanly perf relative to other synthetic and latex-based substrates gives it unique advantages.

TexWrite MP 10

Performance Characteristics

Property	Measurement	Test Method
Basis Weight	148 g/m ²	Texwipe Test Method No. 2: The Determination of Basis Weight
Caliper	10.0 mil	
Tensile Strength		
Machine Direction	7.0 kg	
Cross Direction	2.9 kg	Federal Standards No. 191A: Method 5102
Tear Strength		
Machine Direction	110 g	Elmendorf Tear Test
Cross Direction	Tore to machine direction	
Opacity	97%	TAPPI Test Method T-425

Contamination Characteristics

Property	Measurement	Test Method
Particles > 0.5 µm	0.98 million particles/m ²	Texwipe Test Method No. 5: Particles Released From Wipers and Other Materials Under Conditions of Minimal Stress
Ions		
Sodium	506 ppm	Texwipe Test Method No. 4: Metals and Metal Cations Extractable From Wipers and Other Materials
Chloride	99 ppm	Texwipe Test Method No. 6: The Determination of Water-Soluble Inorganic Chlorides in Wipers and Other Materials

ESD Safety

TexWrite MP products are natural desiccants, able to absorb ambient moisture from the environment. This allows them to achieve excellent ESD safety without the need for additional antistatic coatings.

Like cellulosic-based papers, MP products will gain or lose moisture in response to changes in ambient relative humidity.

In a cleanroom environment of 40% to 60% relative humidity, MP products achieve an equilibrium moisture content of 3.6 % to 4% by weight. This results in a surface resistivity of 10¹¹ ohms, which ranks as dissipative.

TexWrite MP 10 vs. Teslin 10 mil

TexWrite MP products are similar to Teslin™ products from PPG. MP products have been designed to meet the specific needs of cleanroom customers. Standard Teslin products are inferior to MP products in cleanroom applications.

Contamination Characteristics			
Property	MP 10 Measurement	Teslin 10 mil Measurement	Test Method
Particles > 0.5 µm	0.98 million particles/m ²	1.72 million particles/m ²	Texwipe Test Method No. 5: Particles Released From Wipers and Other Materials Under Conditions of Minimal Stress
Ions			
Sodium	506 ppm	2,494 ppm	Texwipe Test Method No. 4: Metals and Metal Cations Extractable From Wipers and Other Materials

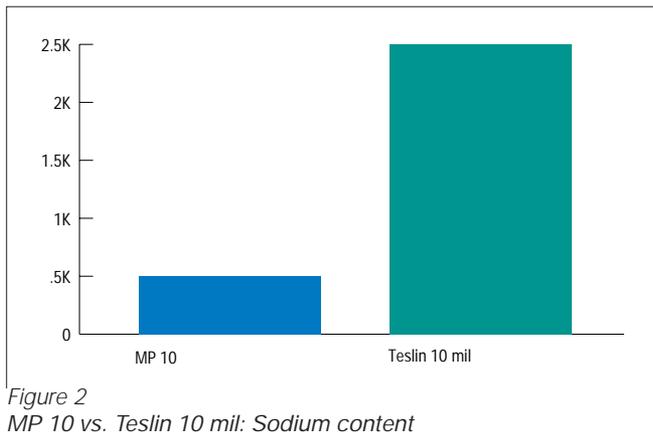


Figure 2
MP 10 vs. Teslin 10 mil: Sodium content

Although similar in structure to PPG’s Teslin products, TexWrite MP products have been specifically formulated and designed for electronic printing and note taking in cleanroom environments. Unlike Teslin, they have been optimized for low particle generation and low ionic content.

Grain Structure

As previously noted, TexWrite MP 10 has been specifically formulated for cleanroom use. The finer grain structure of MP 10 provides for greater image resolution in inkjet or laser printing. This is important for imaging applications and general readability of type. In an abrasion test of the two

products, the coarser grain of Teslin is noticeable. This grain structure creates greater particulate under surface stress.

Blue Coating on MP 10

The MP 10 product also incorporates a distinctive blue coating on one side of the sheet. This performance coating was developed to improve feedability in printers and photocopiers. The uncoated Teslin product will likely jam in most multiple-feed printers and photocopiers. The coloring of the coating was actually suggested by users to improve recognition in the cleanroom and to prevent the use of other non-cleanroom papers.

MP 10 is processed at every step of its production cycle to ensure cleanliness and consistency. These qualities are carefully monitored and controlled. The Teslin product is typically used in commercial graphics and label applications and does not require these levels of control. Likewise, there is no need to control ion or particulate burden in the Teslin product.

Recycling

Relative to specific questions regarding recycling, TexWrite MP 8/10 and Teslin can both be recycled under the category of Other #7. They are not biodegradable.

TexWrite MP 10

Usage Recommendations

TexWrite MP 10 is a 100% synthetic sheet designed specifically for low contamination in the cleanroom. TexWrite MP 10 can be fed through most photocopiers and inkjet and laser printers. It provides for excellent toner adhesion and ink absorption. Due to the wide variety of printers and photocopiers, it is recommended that MP 10 be tested for suitability in any given piece of equipment. Test samples are available through Texwipe.

The following recommendations should be observed when printing MP 10:

- The white side is optimized for photocopying, hand-writing and inkjet and laser printing.
 - The blue coating improves feedability and allows rapid identification as a cleanroom-compatible sheet. The blue side can be photocopied or laser printed but is not recommended for inkjet printing.
 - Single sheet feeding is recommended as the most reliable method.
 - In multiple sheet use, fan and aerate the sheets prior to placement in feed tray.
 - Use a straight-through paper path if one is available.
 - Since MP 10 is a plastic substrate, heating in a copier or laser printer can cause curling if the sheet does not cool in a flat position. This is most likely to occur if the collection tray is shorter than the sheet.
 - When printing two sides on a laser printer or photocopier, let MP 10 cool for a few minutes: then fan, stack and reload.
- MP 10 is not recommended for use in duplex mode in a copier or laser printer.
 - If a jam occurs in front of or behind the fuser section, just remove the sheet as you would an ordinary piece of paper.
 - In the unlikely event that jamming occurs in the fuser section, the sheet may split between the fuser rolls. If that happens, remove the sheet sections and run a sheet of paper through the machine to clear any remaining material between the rolls.

Should you have any specific questions relative to your printing application, please contact Texwipe Customer Support at one of the numbers listed below:

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1 800-TEXWIPE ext 120
(1 800-839-9473 ext 120)
Fax (201) 684-1803

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