

TECHNOTES

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Revolve[™]

a sustainable solution
for your cleanroom



About Texwipe

Texwipe's commitment to innovation, leadership and quality in cleanroom consumable products spans more than fifty-five years. We invest in technology to respond to our customers' evolving needs in contamination control.

Texwipe's Core Values are:

- **Innovation** - Texwipe pioneers the latest technologies to provide innovation in contamination control products and processes.
- **Quality** - Texwipe product quality is maintained by the most advanced testing and quality control standards in the industry.
- **Technology Leadership** - Texwipe leads our industry in testing metrology, methods and processes to reduce contamination.

Throughout Texwipe's global operations, we support our customers with products designed to exceed the requirements for cleanroom consumable products. Our highly professional team will help you select and develop products for any critical environment application.



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Meet **Revolve**TM

an innovation in the
cleanroom industry

The RevolveTM line of cleanroom products by Texwipe[®] (patent pending) is an evolutionary innovation in the way polyester wipers are manufactured.

Polyester (commonly referred to as PET) was first introduced to the consumer in 1951. Texwipe introduced one of the first knit polyester wipers, AlphaWipe[®], to the cleanroom industry in 1982.

Since then, polyester has been accepted as the cleanest yarn used to make wipers, swabs and mops for controlled and cleanroom environments due to its outstanding performance characteristics.

Until the introduction of the RevolveTM line of wipers, the polyester yarn has always been manufactured from virgin material. In contrast, the RevolveTM line of cleanroom wipers is made from post-consumer polyester yarn (also referred to as rPET) made by upcycling polyester water bottles.

Texwipe did extensive research on the performance characteristics of rPET-made polyester compared to virgin polyester material. The rPET materials were processed through Texwipe's manufacturing lines and demonstrated equivalent properties as virgin material.

With these results, a new line of products was born, culminating in the launch of RevolveTM products.



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How Revolve™ is Made

The polyester yarn used to make **Revolve™** products is derived from post-consumer bottles. The bottles are collected and sent to the recycling center where they are sorted, cleaned, ground, repolymerized into chip, and extruded to make the **REPREVE™** yarn. Texwipe uses the **REPREVE™** yarn to make the wiper fabric and then further cleans it to meet Texwipe's standards for the cleanroom industry.

Using the upcycled yarn substantially reduces the consumption of natural resources and thus lessens the carbon footprint. This process is shown in Figure 1.

Upcycle - to recycle something in such a way that the resulting product is of a higher value than the original item.

Figure 1. Revolve™ manufacturing process.



How Revolve™ Helps the Environment

Being upcycled polyester, **Revolve™** contributes to the global effort to reduce landfill waste and natural resource use. Diverting discarded bottles to make yarn and, ultimately, fabric, reduces landfill waste, soil contamination, air, and water pollution.



Figure 2. Indication of number of water bottles used to make bag of wipers



Number of bottles used to make this bag of wipers.

Every bag of **Revolve™** product indicates the number of bottles used to make it (Figure 2).

For example, 47 water bottles are required to make one bag of TX1709 wipers. The number of bottles may seem large but that is because there is not much polyester in a bottle to be made into yarn.

Also, Texwipe does not add any other types of yarn into the fabric.

The **Revolve™** wipers are made using upcycled polyester yarn only.

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Revolve™



▼ To open tear at perforation ▼

▲ To open lift here ▲

TX[®] 1709 Revolve™ Sealed-Edge Wipers

100 Wipers/Bag
9" x 9" (nominal)
23 cm x 23 cm
Made in USA



Texwipe®
An ITW® Company

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The Revolve™ Difference

The most obvious difference between a **Revolve™** wiper/mop and a wiper/mop made from virgin PET is the color. The re-polymerization process makes the color a little less bright compared to virgin PET. Texwipe could have overcome this by introducing other additives to have the color closer match virgin PET. Rather, we chose not to introduce additives as they are potential contaminants which may be detrimental to the cleanroom industry.

Texwipe's expertise in cleanroom consumable products design and manufacturing ensures that products made from rPET have the equivalent performance and contamination characteristics to those made from virgin PET.

How Revolve™ May Impact Your Company's Sustainability Goals

As part of the EPA's **Reduce, Reuse and Recycle** sustainability program (www.epa.gov/recycle), bottles made from virgin polyester are reused and upcycled through the REPREVE® recycling process to make the yarn used in the **Revolve™** products, keeping these bottles from undergoing disposal in landfills. The polyester yarn is used one more time compared to normal practice. As part of the **Revolve™** products, the number of drink bottles that were upcycled to make each bag of wipers or mop product will be marked on the bag. (Table 1)

Table 1: Chart detailing the number of upcycled bottles per bag of wipers or mop product and the GHG savings. The GHG savings are related to the wiper's basis weight and size.

Product SKU	Upcycled Bottles/Bag	GHG Savings (Lbs. CO2/ bag of product)
Wipers		
TX1704	10	1.65
TX1704P	5	0.83
STX1704	5	1.65
STX1704P	5	0.83
TX1709	47	3.85
TX1709P	23	1.93
STX1709	23	3.85
STX1709P	23	1.93
TX1712	70	5.78
TX1712P	35	2.89
STX1712	17	5.78
STX1712P	35	2.89
Mop Products		
TX1720	3	0.41
STX1720	3	0.41
TX1721	13	1.10
STX1721	13	1.10
TX1722	17	1.38
STX1722	17	1.38

Currently, the technology does not yet exist to enable the used **Revolve™** products to be recycled to make the process truly circular; however, the polyester polymer has been used one more time compared to normal practice, saving on energy usage, water usage and **Green House Gases (GHG)** emissions. Spent wipers and mops must undergo the usual disposal process because of the contaminants that have been introduced during use.

Innovation surrounds us and the **Revolve™** products are no different. The **Revolve™** line of products extends the trusted assurance of Texwipe® performance to meet your critical cleaning needs.

Revolve™ Product Offering

Product SKU	Description	Packaging	Total Bags/Case
WIPERS			
Non-Sterile			
TX1704	4" x 4" (10 cm x 10 cm) dry	100 wipers/bag, double-bagged	20
TX1709	9" x 9" (23 cm x 23 cm) dry	100 wipers/bag, double-bagged	10
TX1712	12" x 12" (31 cm x 31 cm) dry	100 wipers/bag, double-bagged	4
TX1704P	4" x 4" (10 cm x 10 cm) pre-wetted with USP-Grade 70% IPA/30% DI water	50 wipers/bag, double-bagged	8
TX1709P	9" x 9" (23 cm x 23 cm) pre-wetted with USP-Grade 70% IPA/30% DI water	50 wipers/bag, double-bagged	4
TX1712P	12" x 12" (31 cm x 31 cm) pre-wetted with USP-Grade 70% IPA/30% DI water	50 wipers/bag, double-bagged	4
WIPERS			
Sterile			
STX1704	4" x 4" (10 cm x 10 cm) dry, sterile	50 wipers/bag (2 inner bags of 50 wipers), triple-bagged	50
STX1709	9" x 9" (23 cm x 23 cm) dry, sterile	100 wipers/bag (4 inner bags of 25 wipers), triple-bagged	5
STX1712	12" x 12" (31 cm x 31 cm) dry, sterile	100 wipers/bag (4 inner bags of 25 wipers), triple-bagged	5
STX1704P	4" x 4" (10 cm x 10 cm) pre-wetted with USP-Grade 70% IPA/30% DI water, sterile	50 wipers/bag, triple-bagged	4
STX1709P	9" x 9" (23 cm x 23 cm) pre-wetted with USP-Grade 70% IPA/30% DI water, sterile	50 wipers/bag, triple-bagged	4
STX1712P	12" x 12" (31 cm x 31 cm) pre-wetted with USP-Grade 70% IPA/30% DI water, sterile	50 wipers/bag, triple-bagged	4
MOPS			
Non-Sterile			
TX1720	Mini Alpha Mop Cover	10 covers/bag, double-bagged	10
TX1721	Alpha Mop Cover	10 covers/bag, double-bagged	10
TX1722	Beta Style Head Refill	1 mop/bag, double-bagged	6
MOPS			
Sterile			
STX1720	Sterile Mini Alpha Mop Cover, sterile	10 covers/bag, triple-bagged	10
STX1721	Sterile Alpha Mop Cover, sterile	10 covers/bag, triple-bagged	10
STX1722	Sterile Beta Head Refill, sterile	1 mop/bag, triple-bagged	6

For Technical Data Sheet [click here](#).

For more information go to www.texwipe.com/revolve

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