

Presaturated Wipes Help Ensure Consistent Processes and Higher Product Quality

By: David P. Nobile, Contec, Inc.

Cleaning surfaces and equipment in controlled environments has historically involved a variety of methods, but usually involves some manner of moving a cleaning material (wipe, mop, etc.) across a surface, often in the presence of a liquid solution. In controlled environment operations, the challenge is in maximizing the ability, consistency, and efficiency to remove contaminants that are usually invisible to the people doing the cleaning – with serious consequences to process and product quality.

In a study conducted some years ago, various commonly used methods for cleaning surfaces were compared for their ability to remove dry particles from a known surface. In this study, particle removal by each method was measured against an ideal 100% removal of particles from the surface. It was clearly demonstrated that cleaning a surface with a wetted wipe removes the most contaminants from the surface compared to other methods (**Figure 1**).

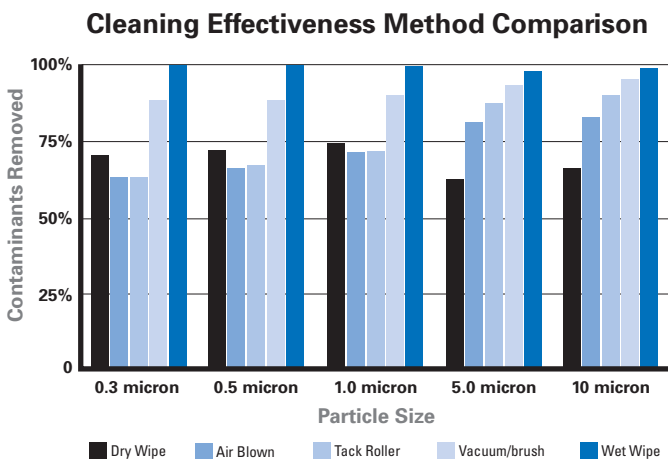


Figure 1

First introduced by Contec, Inc. in 1988, presaturated wipes for controlled environments were initially developed to reduce solvent usage and increase convenience in hand wiping at IBM. At the time, the full range of benefits presaturated wipes could ultimately offer was not known, nor was the extent to which they would be used in unrelated industries.

Because they provide exceptional solvent control, presaturated wipes were soon adopted by aerospace, semiconductor, pharmaceutical, automotive, and other industries in order to meet increasingly stringent VOC emission and solvent reduction regulations. Based on feedback from end users in multiple industries, a comparison of common methods of applying cleaning, and other process solutions to wipes shows that solvent usage can be reduced between fifteen and fifty percent, depending on the method of saturation (**Figure 2**). This has been a significant benefit to companies looking to manage solvent usage and emissions while retaining familiar work practices that involve hand wiping.

However, presaturated wipes provide much more than simple solvent reduction and convenience. In a groundbreaking 1996 study (conducted by Mattina, *et al*, *The Cleanliness of Wiped Surfaces: Particles Left Behind as a Function of Wiper and Volume of Solvent Used*), five different, commonly used wipes were saturated at various volume levels below and above the full saturation limit of the wipes. The type of wipes tested included nonwoven polyester/cellulose, nonwoven polyester, meltblown polypropylene, and both plain-cut and sealed-edge knitted polyester wipes. The performance of the wipes in cleaning a common surface was then compared by measuring the contaminants remaining on the surface after wiping.

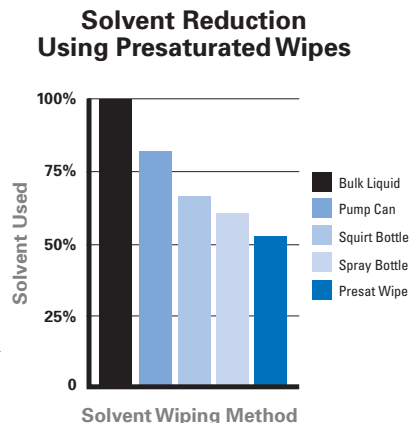


Figure 2

Two very surprising revelations came from this study. First, the cleanliness of the surface after wiping had little correlation to either the type of wipe used, or the initial cleanliness of the wipe. Second, the initial level of saturation has a significant impact on the cleanliness of the wiped surface. The results clearly indicate that a wipe saturated beyond its ability to hold solution left a surface with more contaminants than any other level of saturation. Indeed, saturation levels below the saturation limit of the wipe (i.e. a less wetted wipe) consistently resulted in fewer particle contaminants remaining on the wiped surface. It is thought that particles from the wiped surface, and the wipe itself, are distributed throughout the solution on the wipe. A wipe with an excess of solution will leave some solution on the wiped surface, and with it, any contaminants within the solution.

Combined, these studies indicate presaturated wipes provide very real benefits in surface cleaning and the process of hand wiping surfaces and equipment. Indeed, the process of cleaning is as critical a tool to product quality as any production hardware or manufacturing process. More effective and consistent hand wipe cleaning will result in greater consistency and quality of the overall production process and the resulting product. As has been shown, presaturated wipes are an ideal way to increase process control and standardization, improve safety, reduce solvent and VOC emissions, and enhance convenience.

Contec, Inc. is a leading manufacturer of contamination control products for critical manufacturing environments in Pharmaceuticals, Life Sciences, Medical Device, Animal Lab, and Microelectronics.



CONTEC® MOPPING SYSTEMS

More than 40 options for floors, walls, and ceilings

Over the past 20 years, Contec, Inc. has developed the most complete line of mopping and cleaning products for critical environments. Whether disinfecting or cleaning floors, walls, ceilings, or inside biosafety cabinets and isolators, Contec has more than 40 mops and cleaning tools that meet the demanding requirements of today's high-tech industries. Many are available validated sterile to a 10⁻⁶ SAL. For more sizes, options, and compatible hardware and bucket systems, visit vwr.com.

Description	Cat. No.	Case of
Edgeless® Mop Head	68300-353	20/ 556.89
Edgeless Mop Head, Sterile	68310-119	20/ 556.89
Textured Edgeless Mop Head	80080-578	30/ 647.24
Textured Edgeless Mop Head, Sterile	80080-582	30/ 1,063.22
Long Textured Edgeless Mop Head	94002-784	20/ 523.86
VertiKlean® MAX™ Mop Head	89073-992	48/ 352.75
VertiKlean MAX Mop Head, Sterile	89073-994	48/ 583.31
VertiKlean® Large Mop Head	68310-139	32/ 384.73
VertiKlean Large Mop Head, Sterile	12777-966	32/ 638.23
Textured VertiKlean Medium Mop Head	33501-062	32/ 353.18
EasyCurve™ Mop Head	89073-988	48/ 459.61
EasyCurve Mop Head, Sterile	89073-990	48/ 718.30

