IMPACT OF WIPES ON PIPES:

Overview of Problems and Solutions for Clogged Wipes in Wastewater Treatment Systems

*A **Franklin Miller**® Study*

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INTRODUCTION

Blockages often occur in residential and municipal sewer systems from accumulation of disposable wipes in wastewater treatment systems. The pipes, pumps and other equipment that process flushable waste in wastewater treatment systems are often not capable of handling such waste.

Disposable wipes have a variety of different uses – from sanitary cleansing to make-up removal. The appeal of disposable wipes is that they are easy to dispose of and are often now being labeled as “flushable.” There is an active debate and now many lawsuits surrounding whether or not wipes branded as “flushable” are able to biodegrade quick enough to run efficiently through sewerage systems. Several studies over the past several years have provided evidence to suggest that wipes branded as “flushable” are clogging wastewater systems.

OUTLINE

This white paper examines the following areas surrounding this issue:

- Quick Facts and Statistics
- Background: “Flushable” Wipe Clogging
- Lawsuits on the “Flushable” Wipe
- Solutions for Wastewater Treatment Systems
- Case Study: The City of Scotts Valley sewage treatment plant
- Conclusion

It is the intention of Franklin Miller® that by reading this white paper you will have a better understanding of this critical issue for yourself or your facility, and gain a solution to the problem.

QUICK FACTS AND STATISTICS

- The wipes market – currently valued at $13.2bn – has been growing at 6% to 7% percent annually for much of the past decade
- From 2008 to 2013, sales of flushable wipes alone grew 23% to reach $367 million
- The problem costs U.S. utilities up to $1 billion annually, according to the National Association of Clean Water Agencies.
- Wipes are said to have caused a big issue in New York City, where officials say they have resulted in $18m in equipment problems in the past five years.
- 90% of flushed materials were not intended for wastewater treatment systems
- Only 7% of wipes are designed to be flushable

BACKGROUND: "FLUSHABLE" WIPE CLOGGING

The Detroit Michigan Metro Area has experienced clogging to screens and pumps within their wastewater treatment and they claim the problem is wipes. The wipes caused a temporary, 15-mile road sewer bypass to collapse causing a sinkhole. Due to this event, wastewater officials in the Detroit Metro Area are now urging citizens to flush only toilet paper and human waste.

Officials were discussing whether they should install a cutter on the pump, an additional expense, in the already $70- to $75-million repair project. The large sewer line collapse condemned three houses and caused officials to urge more than 500,000 residents and tens of thousands of businesses to curb water use for months.

After the sewer bypass was finally repaired, officials have continued to battle the wipe issue, with Macomb County Public Works Commissioner, Candice Miller, planning a public education crusade on the issue. She said she may do public service announcements and talk with municipalities about a flyer included in water and sewer bills. "People have to understand the impact of this," she said. "If they can just throw it in the trash and not down the toilet."

In Vancouver, Washington, sewer officials say wipes are a big part of a problem that has caused the city to spend more than $1 million in the last five years replacing three large sewage pumps and eight smaller ones that were routinely clogging.

Frank Dick, Wastewater Engineering Supervisor, for the city of Vancouver, and Shawn Moore, Assistant Manager, of the wastewater district, say the wipes don't great down from the time they're flushed in a home or business to when they reach the sewer's pumping stations, and that when the pump tries to pull the wastewater in, the wipes circulate and tie themselves in a knot, which plugs the pump. At that point, crews have to go out and pull the pump out of the pumping station and "de-rag" it to get the wastewater flowing again.

SOURCES:
https://www.freep.com/story/news/local/michigan/macomb/2017/04/16/flushable-wipes-sewer-sinkhole-fraser-candice-miller/100368830/
http://www.columbian.com/news/2017/may/11/wet-wipes-wipe-out-sewer-systems/

The wipes are marketed as flushable, but Dick alleges what that means to the manufacturers and what that means to municipalities is very different.

They demonstrated their case by dying several types of “flushable” wipes and sending them through the wastewater system. As Dick claims, they did not disintegrate within the time frame the brands claimed they would, meaning they were not flushable as advertised. The tests and complaints prompted The Association of the Nonwoven Fabrics Industry (INDA) to revise voluntary guidelines and specify seven tests for manufacturers to use to determine which wipes to call flushable. It also recommends a universal do-not-flush logo – a crossed-out stick figure and toilet – to be prominently displayed on non-soluble products. The wastewater industry would prefer mandatory guidelines and a say in what's included but supports the INDA initiatives as a start. Three major wastewater associations issued a joint statement with INDA to signal a desire to reach a consensus on flushability standards.

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LAWSUITS: THE “FLUSHABLE” WIPE

Dr. Joseph Kurtz of New York filed a federal class-action lawsuit against the makers of "flushable" wipes after experiencing what he claims were major plumbing and clogging issues in his home. The lawsuit cites Kimberly-Clark and Costco Wholesale corporations and seeks damages of around $5 million.

The suit claims that consumers around the country have suffered clogged pipes, flooding, jammed sewers, and problems with septic tanks due to the use of claimed “flushable” wipes. In response to the federal lawsuit, Bob Brand, a spokesperson for Kimberly-Clark, the makers of Cottonelle wipes said, “Kimberly-Clark has an extensive testing process to ensure that our flushable wipes products meet or exceed all industry guidelines and we stand behind our claims of flushability.”

Even though the wipe packages are labeled “flushable” and “sewer-and-septic-safe,” the lawsuit states that there are no legal requirements that a product must meet in order to claim that it is “flushable” and only voluntary guidelines may be followed at the discretion of manufacturers. The Water Environment Federation and the American Public Works Association – both non-profit groups that deal with wastewater issues – have been and will continue to run tests on these products to determine what the term “flushable” should mean.

The District of Columbia passed a law that will severely restrict, if not eliminate, consumers’ ability to purchase flushable wipes in Washington D.C. The law, which takes effect Jan. 1, 2017 came in response to complaints from D.C. water and sewer utilities nationwide that flushable wipes were

jamming pumps, blocking screens, and clogging equipment at sewage treatment plants. The problem costs U.S. utilities up to $1 billion annually, according to the National Association of Clean Water Agencies. The D.C. law requires wipes sold in the city be labeled “flushable” only if they break apart “in a short period of time after flushing in the low-force conditions of a sewer system.” Wipes that don’t meet that standard must be labeled as something that “should not be flushed.” D.C. is not banning these types of wipes, they are simply regulating them to be properly labeled.

“The flushable wipe problem costs U.S. utilities up to $1 billion annually, according to the National Association of Clean Water Agencies.”

Cities in Minnesota sued six companies for advertising certain wipes as flushable. Due to the damages that occurred, the cities are seeking compensation for time and money spent to repair and unclog the sewers.

The class action lawsuit includes the cities of Wyoming, Mankato, Holmen, Fergus Falls, Elk River and Princeton, along with the Chisago Lakes Joint Sewage Commission, Sauk Centre Public Utilities Commission. They are suing six companies: Procter & Gamble Company, Kimberly-Clark Corporation, Nice-Pak Products, Inc., Professional Disposables International, Inc., Tufco Technologies Inc. and Rockline Industries.

Chisago Lakes Joint Sewage Plant Superintendent Mark Nelson stated that he has seen all kinds of items flushed, but for him the most frustrating remains the alleged flushable wipe. The court ordered the cities to allow companys’ lawyers to investigate the sewer systems. However, due to Minnesota temperatures, Nelson couldn't haul out all of the equipment requested for inspection. "With the cold weather, it's hard to have equipment sitting outside," he said. Wipes are getting caught in screens, clogging pipes, building up, and costing cities both man hours and a lot of money.

The U.S. Federal Trade Commission recently finished an investigation into marketing claims for Kimberly-Clark's flushable wipes. The investigation closed without any negative findings against the company. Dave Rousse, President of INDA says people believe all wipes are flushable, but really only 7% of wipes on the market will break down in sewers. He blames consumers for the clogs, adding, "Too many wipes that shouldn't get flushed are getting flushed."

SOURCES:
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https://www.washingtonpost.com/local/fight-over-labeling-of-flushable-wipes-headed-to-federal-court/2017/09/20/80ad0c84-9e46-11e7-8ea1-ed975285475e_story.html?utm_term=.3081a998e15c
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SOLUTIONS FOR WASTEWATER SYSTEMS

Many municipal sewer districts are adding grinding and screening equipment to solve the frequent blockages caused by the growing problems of wipes masses and build ups. By adding certain grinders to specific parts of the system, plugging associated with wipes will be eliminated or greatly reduced.

Wipes can be ground at the discharge from hospitals and other institutions, at the pump stations or in several points in the wastewater treatment facility, including at the headworks or in other locations such as in sludge recirculation lines and at the suction side of pumps.

When wipes build up into mats, mops, balls or large masses they become an increasingly difficult challenge. The key is to prevent wipes building up into large masses before they occur.

A leading manufacturer of grinders that can effectively reduce wipes is Franklin Miller Inc. based in Livingston, NJ Franklin Miller Inc. (FMI) has specialized in wastewater grinders for nearly 50 years

50 years and has been in business manufacturing crushers, shredders, grinders and screens for 100 years. They are one of the major players and a go-to source relied on by consultants and wastewater plants, not only for top quality equipment but also for expertise in this area.

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Grinders

Franklin Miller developed a range of specialized grinders suited for the particular challenges associates with grinding wipes, providing solutions to the problem for many plants around the country and worldwide.

Franklin Miller grinders are proven to reduce pump clogging, protect process and dewatering equipment, reduce solids, and keep wastewater systems running properly. Their grinders are designed for strength and ease of maintenance. For example, instead of having multiple individual cutters and spacers, their twin shaft grinders use proprietary Cutter Cartridge Technology® which combine cutter and spacer disks into stronger one-piece elements.

Their available models for this service include:

- TASKMASTER® TM8500 Grinder / In-Channel Grinder
- TASKMASTER® Titan® Duplex Grinder / Dual In-Line Grinder
- DIMMINUTOR® / Channel Comminutor
- SUPER SHREDDER® / Inline Grinder

Screens

Wastewater screens are used to remove solids early in the treatment process. With Franklin Miller screens, you can be sure your system is working efficiently. Franklin Miller screens remove solids

from wastewater liquids and wash and compact solids. These screens are available for coarse, fine, channel or wetwell applications. Franklin Miller also manufactures a complete line of internally fed drum screens and septage receiving stations.

Models include:

- SPIRALIFT® S / Screw Screen
- SPIRALIFT® SL / Grinder Screw Screen
- SPIRALIFT® SLV / Vertical Screw Screen
- SPIRALIFT® SC Screenings Conditioner / Washer Conditioner / Washer Compactor
- SCREENMASTER® CS/ Bar Screen
- SCREENMASTER® RT / Internally Fed Drum Screens

[For more info on Franklin Miller's full line of Grinders and Screens visit the website at www.FranklinMiller.com]

CASE STUDY: CITY OF SCOTTS VALLEY

Problem:

The City of Scotts Valley Sewage Treatment Plant suffered constant clogging with their scrum pump. Due to the monthly clogging, operators had to disassemble the pump monthly. Because of this outdated and unsustainable model, operators used large wrenches to manually turn the pump to remove clogged rags and wipes. Needless to say, the treatment plant lost money and manpower.

"We had rakes on the clarifier for scum, rags and other problematic debris," said Troy Adams, Wastewater Division Manager in the City of Scotts Valley. "But we still had such a massive problem with pump clogging. Rags kept getting into the screw pump."

When the pumps ragged up and couldn't turn, taking them apart was a constant issue. "It was an operator nightmare," Adams said. "It was at least once a week, and at least a four-hour ordeal. It was happening so often, we just left all the tools and everything needed sitting right next to the pump."

Scotts Valley knew they had to find a solution to this once and for all. "We spoke to many Franklin Miller users and were very impressed with everything we heard about the Franklin Miller Super Shredder®."

Solution:

In 2016, Scotts Valley installed the Super Shredder® on the line from the clarifiers to the scrum pit for the fog, rags, and flushable wipes that collect off the top of the clarifiers. The Super Shredder® in-line macerator reduces tough wastewater solids to fine bits with a unique, spherical rotor design. The unit is specifically designed for high capacity and minimal head-loss. Because of its high percentage of open area, the Super Shredder® remains practically invisible to flow. It is also simple to install in straight-through pipe systems.

"From the day we put the Super Shredder online, we have not even one time had to stop operation or de-rag the pump. Not a single problem! The Super Shredder® is truly a dream come true for operators. It has saved us so much time. Our maintenance costs alone were so high, that this has saved us a ton of money."

"I am so appreciative of the great working relationship with everyone at Franklin Miller®," Adams continued, "from the salesman to the representative. They were a big help; they worked very closely with me to be sure I was getting the right equipment for my project and that it was being installed and operated correctly for the task I was trying to accomplish. I am very appreciative of all their help and I will continue to use the expertise and experience in the future with my other projects at the plant."

The installation of grinders, in this case, the installation of the Franklin Miller Super Shredder, saved a city from a super amount of flushable wipe buildup.

CONCLUSION

Wastewater systems suffer when blockages occur. It's been proven that particular difficulties arise when woven fabrics build-up within them such as disposable wipes – even if they are labeled as flushable. While this problem has caused major maintenance expenses for municipalities nationwide, you don't have to fall victim to frequent system blockages, build-up, or shutdowns. You can keep things moving with a properly designed grinder or screen proven for wipes service, giving you peace of mind about your pumps and pipes.

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