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What the Flush is the IWSFG?

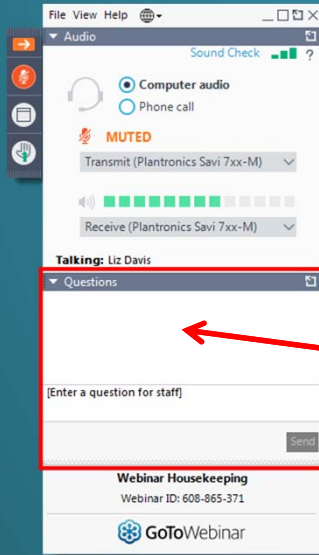
Wastewater Experts Discuss the Latest in
Flushable Wipes Specifications

September 9, 2021

The slide has a solid teal background. On the left is the IWSFG logo, a circular emblem with a blue border containing a white toilet icon with a green checkmark. To the right of the logo is the main title 'What the Flush is the IWSFG?' in large white font, followed by the subtitle 'Wastewater Experts Discuss the Latest in Flushable Wipes Specifications' in a smaller white font. Below the subtitle is the date 'September 9, 2021' in a light grey font. In the bottom right corner is the Water Environment Federation logo.

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How to Participate Today



- **Audio Modes**
 - Listen using Mic & Speakers
 - Or, select “Use Telephone” and dial the conference (please remember long distance phone charges apply).
- **Submit your questions using the Questions pane.**
- **A recording will be available for replay shortly after this webcast.**



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Speakers for Today’s Webinar:



Moderator:
Bri Nakamura, PE
Practice Leader, Innovation
WEF



Barry Orr
Canadian IWSFG
Researcher & Representative



Rob Villee
US IWSFG Researcher &
Representative



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What we are covering

The Charleston SC Settlement - Bri

The History of the IWSFG – Barry & Rob

A Deep Dive into the Technical Details of the IWSFG Flushability Specification – Rob & Barry

Questions

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Charleston Water Systems Class Action Lawsuit & Settlement

- **Defendants:** Kimberly-Clark, Costco, CVS, Proctor & Gamble, Target, Walgreens, and Wal-Mart.
 - **Settlement is only with Kimberly-Clark.**
- **Class Members:** All entities that own and/or operate wastewater conveyance and treatment systems between January 6, 2018 through preliminary approval of settlement.
- **Relief Sought:** Orders preventing the Defendants from continuing to manufacture, market, and sell flushable wipes that are not in fact flushable.
- **Kimberly-Clarks Commitment:**
 - **New Standard:** Must meet the current International Water Services Flushability Group (IWSEG) Publicly Available Specifications (PAS) 3 Standard by May 1, 2022.
 - **Other Changes:** Independent testing, educational content, label changes, and product endorsement.

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What Should Class Members Do?

- **Read the Stipulation of Settlement:** Read the terms carefully.
- **Analyze the Standard:** WEF will distribute information regarding IWSEG PAS 3.
- **If Considering Objecting:** It will be difficult to overturn the settlement; however, it can be done with technical expertise and a strong showing from the sector.
 - If a Class Member does not oppose the settlement, then NO action is needed.
- **Changes by Industry Leader:** This is the first commitment of this kind by an industry leader, a positive development for the sector.



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Resources Available

- **Flushable Wipes Litigation: Stipulation of Settlement with Kimberly Clark Factsheet**
 - Pending Settlement Agreement
 - Plaintiffs Motion for Preliminary Approval
 - Plaintiffs Memorandum of Law in Support
- **Words on Water Podcast #191: Dave Ross and Lindsey Mann on Wipes Class Action Lawsuit Settlement**
- **The Role of the IWSFG and their Flushability Specification Fact Sheet**

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Flushable Wipes Litigation: Stipulation of Settlement with Kimberly-Clark

FLUSHABLE WIPES LITIGATION

- ▶ **Plaintiff:** Charleston Water System
- ▶ **Class Members:** All entities that own, install, or operate wastewater conveyance and treatment systems between January 8, 2018 through preliminary approval of settlement.
- ▶ **Defendants:** Kimberly-Clark, Costco, CVS, Procter & Gamble, Target, Walgreens, and Wal-Mart
- ▶ **Relief Sought:** Orders preventing the Defendants from continuing to manufacture, market, and sell flushable wipes that are not in fact flushable.
- ▶ **Settlement:** Applies OLV V to claims asserted against Kimberly-Clark.

WHAT HAPPENS NEXT?

- ▶ **Preliminary Approval:** The Court will decide whether to issue a preliminary approval of the settlement. If the Court does not approve, the settlement cannot go forward. If the Court does approve, Class Members will be notified.
- ▶ **Objections:** The Notice will provide a deadline for submitting objections.
- ▶ **Fairness Hearing:** After the objection period, the Court will hold a final hearing and will consider objections (and testimony from class members). The Court will either approve or reject the settlement—the Court will not alter the terms of the Settlement.
- ▶ **No Opt-Outs:** Class Members cannot opt out of the class.

KIMBERLY-CLARK'S COMMITMENT

- ▶ **New Standard:** Must meet the current International Water Services Flushability Group (IWSFG) Publicly Available Specifications (PAS) 3 Standard by May 1, 2022.
- ▶ **Other Changes:** Independent testing, educational content, label changes, and product endorsement.

RELEASES BY CLASS MEMBERS

- ▶ **Monetary Relief:** The settlement has NO impact on claims for monetary relief for any individual class member.
- ▶ **Injunctive Relief:** Class members must release all claims for injunctive relief related to any wipe product (flushable or non-flushable) currently or formerly manufactured by Kimberly-Clark.

WHAT SHOULD CLASS MEMBERS DO?

- ▶ **Read the Stipulation of Settlement:** Read the terms carefully.
- ▶ **Analyze the Standard:** WEF will distribute

Words On Water #191: Dave Ross and Lindsey Mann on Wipes Class Action Lawsuit Settlement

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What the Flush is the IWSFG?

Rob Vilee and Barry Orr



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Important Up-Front Issues to Understand

What is the real problem: No definition for flushable wipes.

Flushable Wipe Technology: Where we came from and Where we are now.

Injunctive Relief is probably the best we can achieve

The IWSFG – The Who, the What, & the Why

How this Settlement is a building block for future efforts

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How the Settlement addresses these issues

- Establishes a technical specification for flushable that is supported by a major North American manufacturer
- Provides better labeling for non-flushable wipes
- Because it is supported by Kimberly-Clark it makes it easier to incorporate both pieces into Legislation
- It provides for independent oversight for compliance (2 years)
- It provides for education around the flushable and non flushable labels
- It establishes legitimacy for the IWSFG to be the basis for an International Standard

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WEF & NACWA Statements

WHAT SHOULD CLASS MEMBERS DO?

- **Read the Stipulation of Settlement:**
Read the terms carefully.
- **Analyze the Standard: WEF will distribute information regarding IWSEG PAS3**
- **Consider Objecting:** It will be difficult to overturn the settlement; however, it can be done with technical expertise and a strong showing from the sector. If a class member does not oppose the settlement, then NO action is needed.
- **Changes by Industry Leader:** This is the first commitment of this kind by an industry leader, a positive development for the sector.

- Under this first ever settlement of its kind, Kimberly-Clark has agreed to ensure that its flushable wipe product will meet the stringent flushability standards set forth by the International Water Services Flushability Group (IWSFG).
- This is a significant achievement in ensuring “flushable” products actually perform as advertised and do not cause blockages in sewer systems, and NACWA commends CWS for securing this agreement.
- NACWA also acknowledges Kimberly-Clark’s commitment to meet the IWSFG standards, which is an important step forward for the wipes industry. This settlement demonstrates that wipes manufacturers are more than capable of meeting the standards set by the IWSFG, a consortium of international wastewater associations and operators, to ensure flushable products do not damage sewer systems.

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PART 1 -- History of the IWSFG

- **Why use the IWSFG Specification, instead of one from a “recognized” standards body?**
- **Why does the IWSFG exist?**
- **Who is the IWSFG?**
- **A quick intro to the IWSFG specification**

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Why use the IWSFG Specification, instead of one from a “recognized” standards body?

- **The simple answer--- none exist**
 - **Not ISO, ANSI, ASTM, etc.**
- **If you want your specification used in legislation or regulations, it has to be a complete drop-in ready document**
- **Before IWSFG, only a set of guidelines created by the manufacturers were publicly available**
- **It is the most stringent**

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Why does the IWSFG exist?/How the group came together?

- There was a real need for a wastewater industry specification to counter the manufacturers
- Unable to agree on a specification with the manufacturers
- IWSFG members represented their country's standard organizations on ISO

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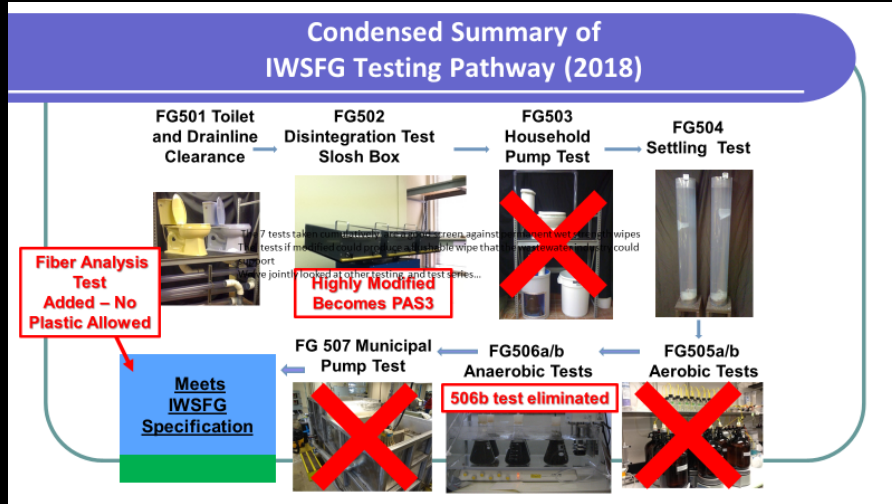
Who are the members of the IWSFG?

- The Technical Directors of the Australian, Japanese, New Zealand and Spanish Water and Wastewater Associations. They all represent their countries on ISO
- The Director of Regulatory Affairs for NACWA
- A Turkish professor that specializes in wipes research
- 4 North American Utility Members that are all members of WEF, and in various combinations also members CWWA, NACWA and ISO

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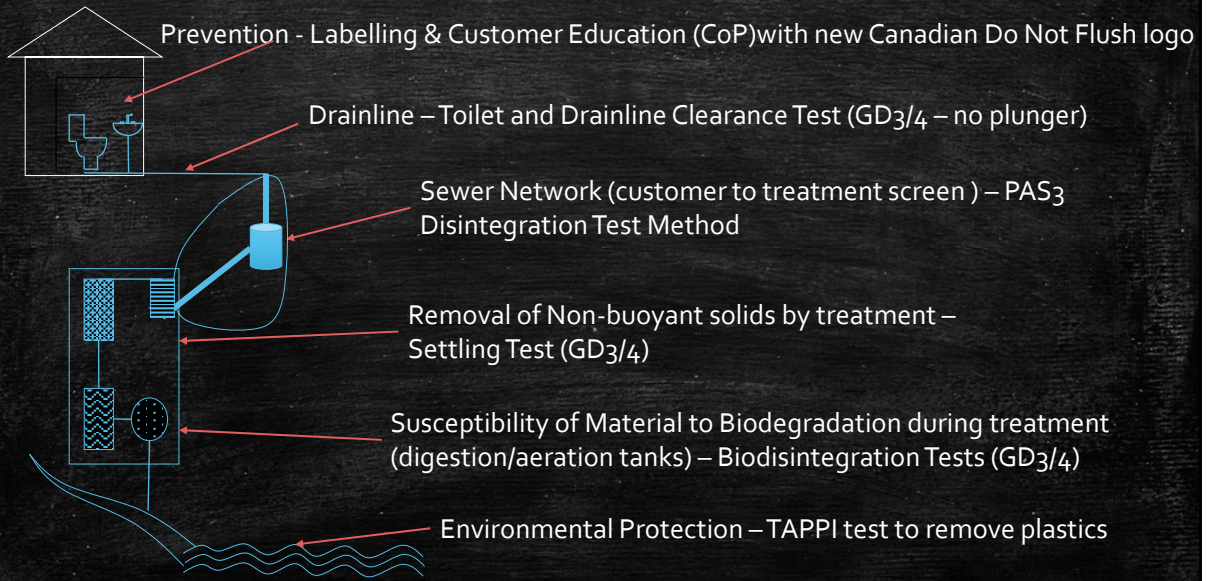
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A quick intro to the IWSFG specification



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IWSFG – How the Publically Available Specification protects the Sewer system



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PART 2 – The Technical Stuff

- PAS 3 Disintegration Test
- Fiber Analysis – The Tappi Test
- Do-Not Flush Labeling

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PAS 3- Disintegration Test

- It isn't flushable unless it is dispersible – Nick Arhontes, Orange County SD 2010
- Test Variables
 - Force
 - Time
 - Pass/Fail Criteria

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INDA 3rd Edition Disintegration Test (2013) The Force is... ridiculous



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Changing the Force - Changes the results Comparison of 2 and 12 L Slosh Box Test Results

Slosh Box Test - 2 L of Water

Slosh Box Test - 12 L of Water

2014 Slide



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Testing 2014

Slosh Box Comparison Chart

Product	INDA Edition 3 - 2 Liters of Water	Wastewater 12 Liters of Water
2 Ply Toilet Paper	20 seconds	5 Minutes
Quilted Toilet Paper	45 seconds	30 Minutes
Kimberly Clark - Scotts Natural Flushable Cleansing Cloth	18 Minutes	80 Minutes
Kimberly Clark - Cottenelle Flushable Cleansing Cloth	22 minutes	90 Minutes
Walgreens Nice Fresh Wipes (3)	2 hours	20 Hours
Proctor & Gamble/Charmin Flushable Wipe (5)	3 Hours	20 Hours
SC Johnson- Scrubbing Bubbles Flushable Bathroom Wipe(7)(3)	1 Hour	20 Hours
Wal-Mart Equate Flushable Wipe (NSF Certified Flushable) (1)(3)	3 Hours	20 Hours
Kirkland Moist Flushable Wipe (1)(3)	3 Hours	20 Hours
Proctor & Gamble/Neemiah Kandoo Flushable Wipe (1)(3)	3 Hours	20 Hours
Dollar Shave Club - One Wipe Charlies (NFL) (2) (4)	3 Hours	20 Hours
<i>Time as noted</i>		
Notes:		
(1) - Not totally broken up after 3 hour test limit - relies on Loss of Mass to pass test		
(2) Failed INDA Test - no noticeable breakdown or loss of mass in 3 hours		
(3) Significantly in one piece after 20 hours - some mass loss		
(4) In one piece after 20 hours - no noticeable loss of mass		
(5) Broke into pieces by the 3 Hour test time limit		
(6) Broke into one small and one large piece by 20 hour test time limit		
(7) Breaks up during flush - breaks into larger pieces in 15 minutes		

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The manufacturers knew the force was too high FG502 Slosh Box - 3 Hours

**Non-Flushable and Do
Not Flush**

**Labeled
Flushable**



Picture from P&G

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Continuously Flowing Pipe System

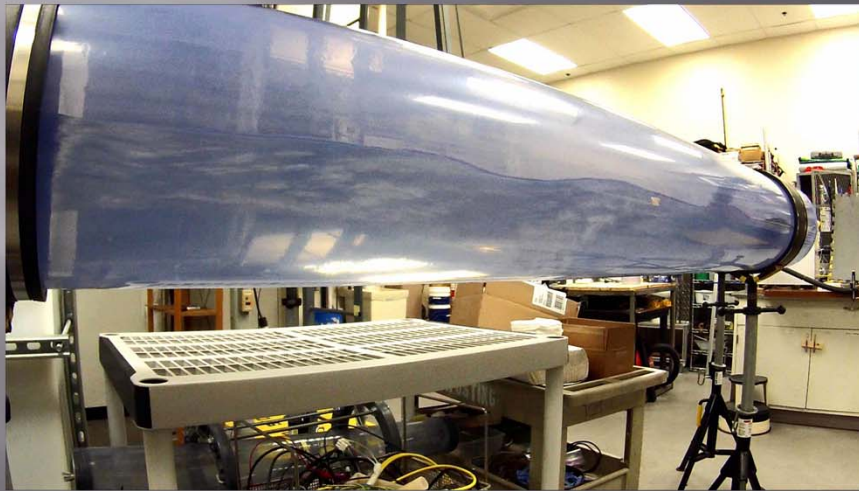


Picture from P&G

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Continuously Flowing Pipe



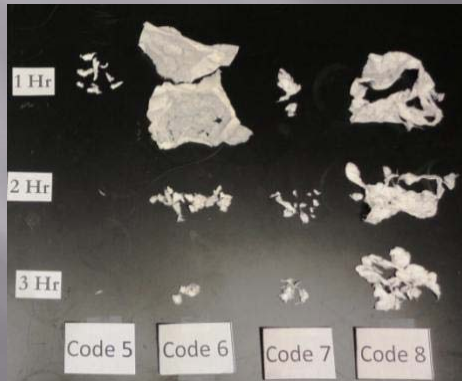
Video from P&G

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FG502 Slosh Box and Continuously Flowing Pipe (CFP) Comparison

FG502 Slosh Box



Pictures from P&G

CFP



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Time – How did we arrive at 30 Minutes?

- ❑ NACWA and APWA put out a survey to their members
- ❑ P&G did 2 studies on Transit Time
- ❑ We looked at 10th and 25th percentile data instead of median and average to protect the smaller systems
 - 0-10 mgd systems make up over 95% of the systems in the US

30 minutes +/- kept coming up and we felt it was defensible

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Where did the 25mm/1" Pieces come from?

- ❑ Originally came from the manufacturers – 1st and 2nd Edition
- ❑ Products needed to pass through a 25mm or 1" sieve.
- ❑ IN GD4, the manufacturers presented research showing that as wiper size was reduced, the power draw in the pump test dropped. But the smallest piece was still 4 square inches.

The research question became:

1. are 1" pieces protective of pumps?
2. If they are, can we eliminate the pump test?

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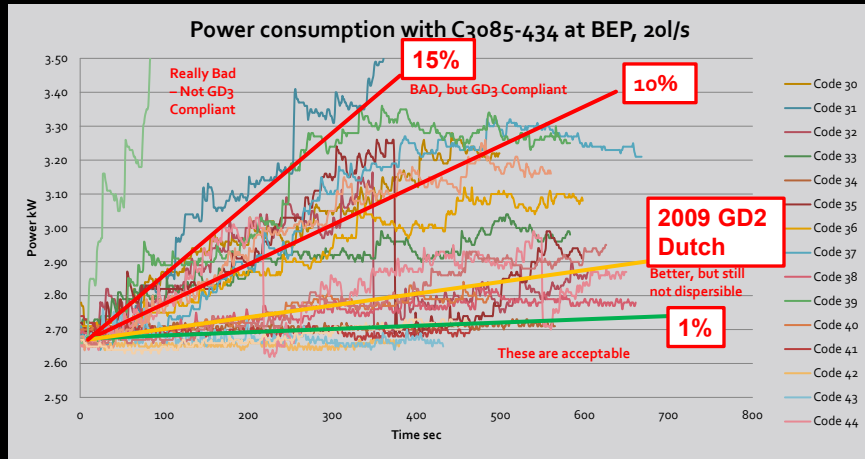
Municipal Pump Test - FG 507



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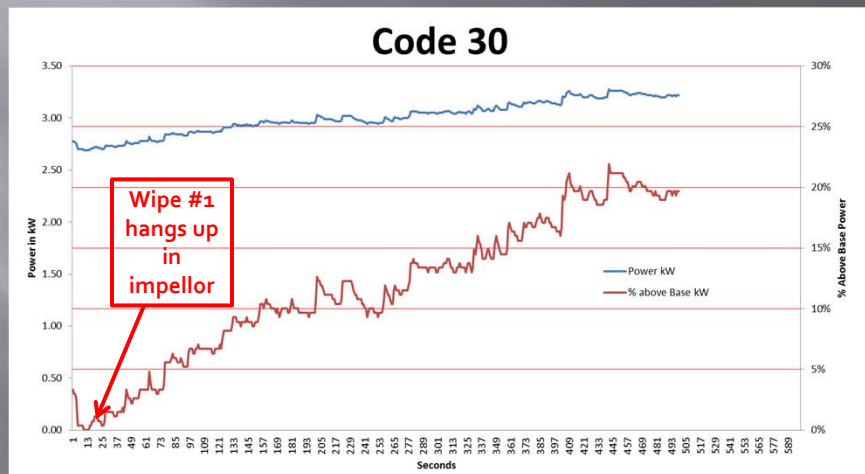
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Power Traces compared to Various Pass/Fail Criteria



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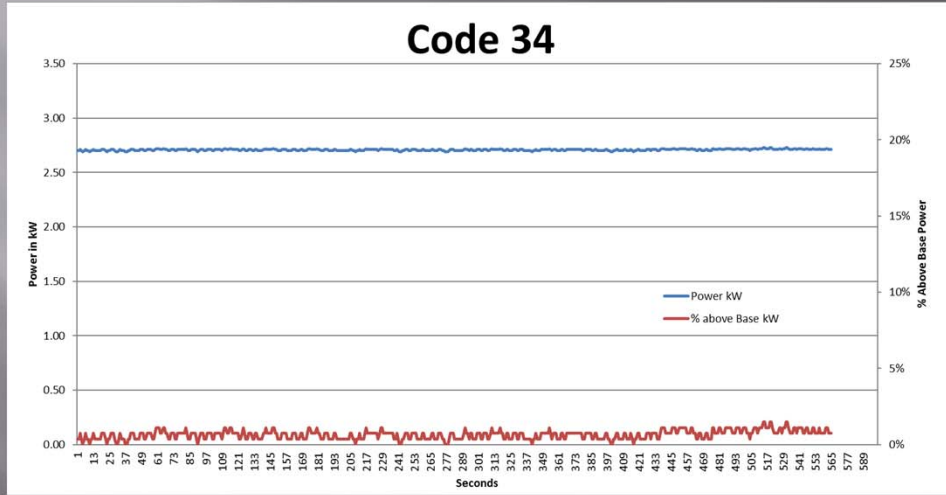
Typical 2015 Flushable Wipe



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Kimberly Clark Cottonelle FW

Code 34

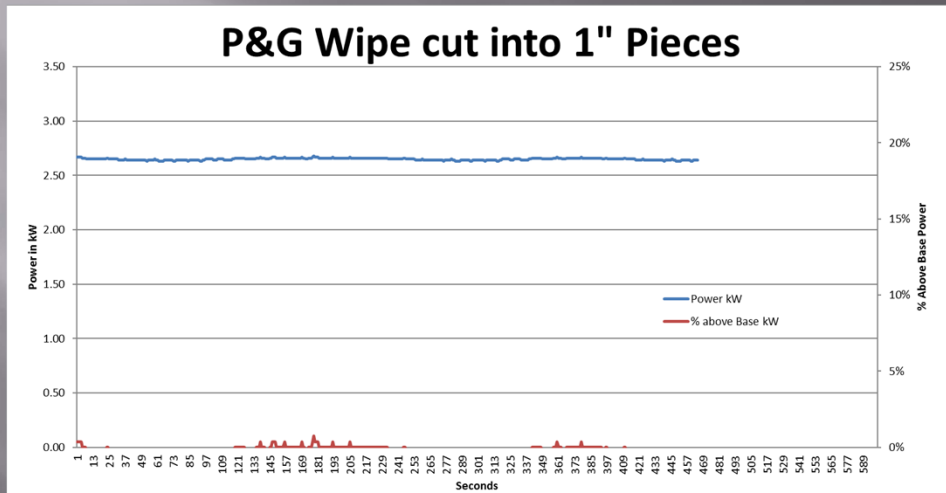


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1" Pieces have no impact on the pump

P&G Wipe cut into 1" Pieces



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The Toilet Paper Conundrum

- Wastewater says it is "OK" to flush Toilet Paper
- TP comes in all different grades
- Some of the premium TP struggled to pass the original PAS₃ (2018)
- Hard to combat the lobbyist's line, " Even TP can't pass the IWSFG"
- We had to make tweaks to PAS₃



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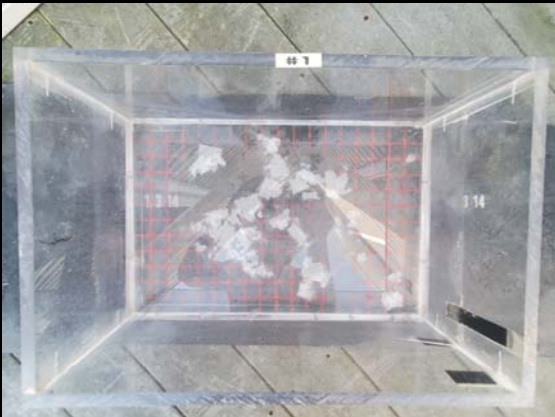
IWSFG PAS 3: 4L, 30 min, 18 rpm



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Is this broken up enough?



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PAS₃ Summary

- Kimberly-Clark is agreeing to produce a wipe and have it independently tested for 2 years that breaks down into 1" pieces in 30 minutes in the forces similar to that of an 8" sewer main with 2-3 inches of flow at 2 ft/sec

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Baby Wipes are strong!



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What are the main obstacles to solving this problem?

A wipe shall disperse in a short period of time after flushing in the low force conditions it would experience in a local sewer system.

A wipe shall not be buoyant.

A wipe shall contain only natural/unmodified cellulose fibers.

A wipe shall not snag and accumulate in a sanitary sewer line.

All wipe products shall be clearly labeled with DO NOT FLUSH logo (unless all of above are met).



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The Issue

The absence of a legislated industry standard for the term flushable has led to confused consumer product disposal.



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Wipes Labeling Act Illinois SB0294



- Be it enacted by the People of the State of Illinois, represented in the General Assembly
- "It is not the intent of the General Assembly to address standards for flushability with this Act"
- WHY?

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Do Not Flush labelling report



The current INDA/EDANA CoP is not adequate to convey a consistent DNF message to consumers. The variance among brands and manufacturers in size, color, and placement of the DNF symbol makes it almost impossible for a consumer to immediately identify the disposal instructions, and the products as non-flushable.

<https://cwwa.ca/advocacy/>

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New Canadian logo



- It is critical to get the logo right so that it is universally recognized.
- Follow ISO signage

Mandatory action	Prohibition	Warning
M001 General mandatory action	P001 General prohibition	W001 General warning

Figure 1: Examples from ISO 7010 showing the three types of symbols used in product safety labels, along with the reference number and referent or safety meaning.

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Tide is an American brand of laundry detergent manufactured and marketed by Procter & Gamble. Pampers is a brand of baby and toddler products marketed by Procter & Gamble.



Two brands 2 different logos

Change can occur with some collaboration!



IWSFG Criteria

Flushability PAS Criteria

The PAS includes three sections:

- IWSFG PAS 1 – Criteria for Recognition as a Flushable Product
- IWSFG PAS 2 – Terms and Definitions for Determination of Flushability
- IWSFG PAS 3 – Disintegration Test Methods – Slosh Box

For a product to be deemed suitable for flushing down the toilet, it must meet **five criteria**:

Criteria	Reference Document (with relevant acceptance criteria)
Environmental protection	TAPPI/ANSI Test Method T 401, <i>Fiber Analysis of Paper and Paperboard</i> .
Toilet and drain line clearance	As outlined in INDA/EDANA 2013, FG501: <i>Toilet and Drainline Clearance Test</i> with a modification to the acceptance criteria as noted in Section 7.2. No plunger shall be required to address blockages.
Disintegration	IWSFG 2018: PAS 3 <i>Disintegration Test Methods – Slosh Box</i> .
Settling	As outlined in INDA/EDANA 2013, FG 504: <i>Settling Test</i> .
Bio-disintegration	As outlined in INDA/EDANA 2013, FG506: <i>Anaerobic Bio-disintegration Test</i> .

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Single Use Plastic item identified by TAPPI: T401

Table 1. Fiber Analysis of Nonwovens #1

Fiber Type	Softwood	Raw Count	1072
Bleaching	Bleached	Weight Factor	0.90
Pulp Process	Kraft	Final Count	965
		% by Weight	70.5%

Species:

Principal - [Spruce and/or Hemlock]
Some - Fir, Hard Pine (Except Red & Scotch), [White and/or Red Pine]

Fiber Type	Hardwood	Raw Count	42
Bleaching	Bleached	Weight Factor	0.36
Pulp Process	Kraft	Final Count	15
		% by Weight	1.1%

Species:

Principal - Maple

Fiber Type	Synthetic	Raw Count	599
Bleaching		Weight Factor	0.65
Pulp Process	Chemical	Final Count	389
		% by Weight	28.4%

Species:

Principal - Lyocell

Table 3. Fiber Analysis of Nonwovens #3

Fiber Type	Seed Hair	Raw Count	192
Bleaching		Weight Factor	1.00
Pulp Process	Chemical	Final Count	192
		% by Weight	24.0%

Species:

Principal - Cotton

Fiber Type	Synthetic	Raw Count	238
Bleaching		Weight Factor	0.70
Pulp Process	Chemical	Final Count	167
		% by Weight	20.8%

Species:

Principal - Rayon

Comments: Delusterants are present on the fibers.

Fiber Type	Synthetic	Raw Count	679
Bleaching		Weight Factor	0.65
Pulp Process	Chemical	Final Count	441
		% by Weight	55.2%

Species:

Principal - Polyester

Comments: Delusterants are present on the fibers.

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2015 Fibre analysis:

Table 5. Fiber Analysis of Nonwovens Cottonelle

Fiber Type	Softwood	Raw Count	714
Bleaching	Bleached	Weight Factor	1.00
Pulp Process	Kraft	Final Count	714
		% by Weight	96.6%

Species:
Principal - Hard Pine (Except Red & Scotch), [Spruce and/or Hemlock]
Some - [White and/or Red Pine]

Fiber Type	Hardwood	Raw Count	66
Bleaching	Bleached	Weight Factor	0.38
Pulp Process	Kraft	Final Count	25
		% by Weight	3.4%

Species:
Principal - Eucalyptus
Some - Populus spp.

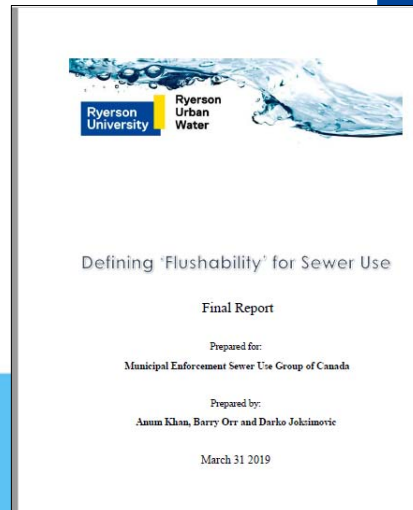
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Final Report

Available online at:

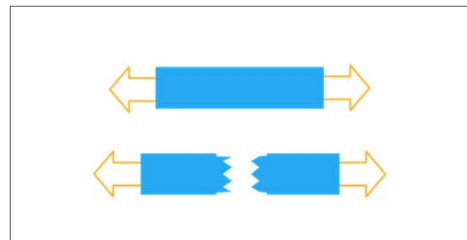
<https://www.ryerson.ca/water/>



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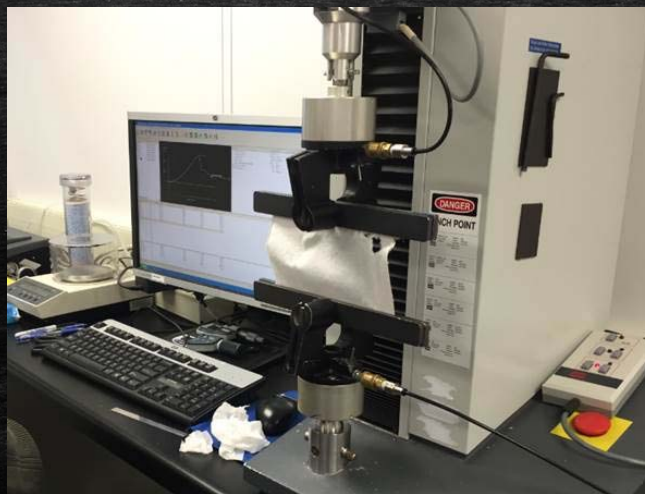
Wipes Physical Properties

- Wipes contained plant-based, and regenerated-cellulose (RC) fibers at various ratios, including up to 100% RC fibers.
- Toilet paper made of only plant based fiber
- Tensile strength, the maximum force to break a specimen (Fmax) averaged for flushable wet sheet is **5.9 N**.
- **0.26 N** for wet toilet paper



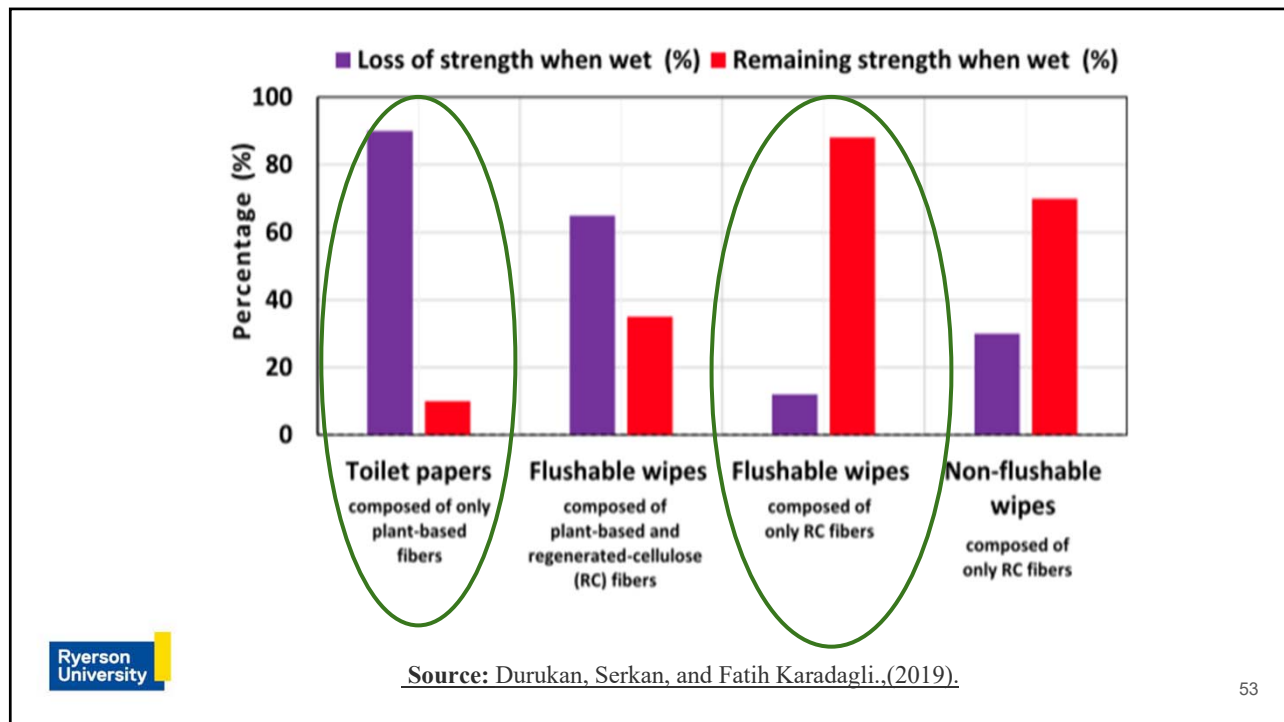
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Force to tear wipe = $F_{max}/area$



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Next steps (Barry opinion)

- Join the IWSFG
- Implement new Do Not Flush logo
- Raise public awareness regarding appropriate disposal methods to prevent sewer blockages
- Advocate for government acceptance of IWSFG specification
- Monitor manufacturers to adhere to testing and labelling

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Reasons to support the settlement or at least don't challenge it (Rob opinion)

1. If enough people challenge it, and it gets turned down, this goes back to litigation. It would be a huge step backwards...
2. Treat this settlement as a building block for the future
3. This may be our best, last chance to get an agreement... voluntary or mandatory
4. As flushable wipe technology gets better (and it is), the ability to file "flushable wipe" lawsuits against the manufacturers becomes tougher
5. Shift the focus to labeling and education

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- robvillee@gmail.com



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Questions?

