

Maryland Committee on Education, Health,  
and Environmental Affairs

Senate Bill 280:  
Nonwoven Disposable Products – Advertising and Labeling

February 14, 2017

Testimony provided by:

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Thank you for the opportunity to provide this testimony on the topic of nonwoven disposable products. My name is Cynthia Finley and I am Director of Regulatory Affairs for the National Association of Clean Water Agencies (NACWA). NACWA, a trade association based in Washington, DC, represents nearly 300 publicly owned wastewater utilities around the country. Our members in Maryland are the Washington Suburban Sanitary Commission (WSSC), Baltimore City Department of Public Works, and Anne Arundel County Department of Public Works. NACWA's public wastewater utilities must comply with strict federal standards mandated by the Clean Water Act, as well as applicable state requirements, and the Association works to ensure its members can meet these requirements and continue to provide high-quality wastewater treatment services.

NACWA and other wastewater associations, including the Water Environment Federation (WEF) and the American Public Works Association (APWA), began receiving reports from members in 2008 about problems caused by nonwoven disposable products, commonly referred to as "wipes." The incidents of clogged pumps, blocked screens, accumulation in wastewater treatment plants, and sewer blockages due to wipes continue to increase. NACWA estimates that utilities nationwide spend \$500 million to \$1 billion each year dealing with problems caused by wipes. In addition, the utility workers that must clean wipes out of clogged pumps and other equipment are placed at risk. They risk physical injury from the process of cutting and pulling wipes out of mechanical equipment, and they risk illness due to the pathogens and contaminants in raw sewage.

NACWA supports Senate Bill 280, Nonwoven Disposable Products – Advertising and Labeling, as an important step to begin controlling the problems caused by wipes for wastewater utilities in Maryland. The bill addresses both major issues associated with wipes: (1) wipes that are labeled "flushable" do not break apart quickly enough in sewer systems, and (2) consumers are not given clear instructions to dispose of wipes in a trash can, rather than by flushing. NACWA recommends that the definition of "nonwoven product" in not be limited to products "designed, marketed, or commonly used for personal hygiene purposes," since cleaning wipes are also commonly flushed and found fully intact in sewer systems.

### **Stricter Flushability Guidelines Needed**

The wipes industry, represented by INDA (the trade association of the nonwoven fabrics industry), has published a series of voluntary flushability guidelines for wipes, but none of these considered the input of wastewater utility professionals. The most recent version, the 3<sup>rd</sup> edition, was published in June 2013, despite NACWA and other wastewater associations stating that the criteria in the guidelines were inadequate. INDA agreed in 2014 to work with NACWA, WEF, and APWA on a 4<sup>th</sup> edition of the flushability guidelines to produce a consensus set of guidelines between the wipes and wastewater industries. Unfortunately, work on these guidelines has been stalled since June 2016.

Although many wipes packages indicate that the wipes are flushable and that they pass the current industry guidelines, the wastewater industry has shown that they do not break apart well in actual sewer systems. For example, the City of Vancouver, Washington, has performed tests of flushable wipes in its sewer system, dropping them into a manhole and observing their condition at a downstream collection point. With one possible exception, the so-called flushable wipes currently

on the market in the U.S. were retrieved fully intact after at least 30 minutes of travel time through the Vancouver sewer system. (See Attachment A for a summary of the test results.)

The wastewater associations also performed municipal pump tests on flushable wipes, where the wipes were fed through a typical pump used in sewer systems. The tests showed that all the wipes on the market in the U.S. accumulated in the pump, rather than passing through it, which could lead to clogs. In NACWA's view, a product that is labeled "flushable" should not accumulate in a pump. (See attachment B for the pump test results.)

In September 2016, an international group of wastewater organizations and utilities released a position statement on wipes (Attachment C), which has now been supported by over 300 entities in 25 countries. The statement contains three key requirements for any flushability standard that is developed. These requirements are that a wipe that is considered flushable must:

1. Break into small pieces quickly;
2. Not be buoyant; and
3. Not contain plastic or regenerated cellulose and only contain materials which will readily degrade in a range of natural environments.

Existing tests can be used to determine if a wipe meets these requirements:

1. The French toilet paper standard provides a benchmark on whether a wipe breaks apart quickly or not (French National Standard Q 34-020, August 1998, Toilet Paper Disintegration);
2. The INDA/EDANA Buoyancy Test shows whether a wipe will float or not (INDA/EDANA *Guidance Document for Assessing the Flushability of Nonwoven Consumer Products, Edition 3, June 2013*); and
3. A fiber analysis test from the Technical Association of the Pulp and Paper Industry (TAPPI) demonstrates the types of fibers used in a wipe (TAPPI/ANSI Test Method T 401 om-15, Fiber Analysis of paper and paperboard).

An international group of wastewater experts is currently evaluating these tests, and any other appropriate tests, that could be used in an international wastewater flushability standard.

### **Non-flushable Wipes Must be Clearly Labeled as "Do Not Flush"**

Since wipes that are not designed to be flushed cause the most problems for wastewater utilities, it is important that baby wipes, cleaning wipes, and personal hygiene wipes be labeled clearly as "Do not flush." The wipes industry has developed a voluntary labeling Code of Practice (COP) for non-flushable wipes that was published in 2013. However, this Code is inadequate since it allows the "Do not flush" logo to be too small and to be placed on the back of wipes packages, where the consumer has little chance to see it.

The wastewater associations believe that a clear "Do not flush" logo must be on each package of wipes, where the consumer will see it both when purchasing the wipes and when using the wipes. Costco was an early adopter of this type of labeling, using the "do not flush" logo on its Kirkland Signature baby wipes:



Unfortunately, other baby wipe brands continue to place the logo on the back of the package:



NACWA is currently working with INDA and other wastewater associations on an improved COP, and we have nearly reached consensus. If the associations are able to finalize this updated COP, then packages of non-flushable wipes in compliance with the COP will have a “Do not flush” logo near the wipe dispensing point, like the Kirkland Signature baby wipes pictured above. This logo will be in proportion to the size of the package, so that a standard package of baby wipes will have a 0.75-inch diameter logo. This logo should be in a color that is in high contrast to the background color of the package, and visible to the consumer without handling the package.

If this updated COP is implemented in good faith by wipes manufacturers and retailers, the “Do not flush” logo will be easily visible to consumers, providing easy-to-understand instructions for on how to dispose of non-flushable wipes. However, the COP will still be voluntary, and legislation mandating use of clear “Do not flush” labeling will ensure that this vital consumer education is provided on each package of non-flushable wipes.

## Conclusion

Improved flushability standards and clear labeling of non-flushable wipes are both needed to reduce the problems caused by wipes for wastewater utilities. Senate Bill 280, Nonwoven Disposable Products – Advertising and Labeling, will hold the manufacturers that are profiting

from the sale of wipes responsible for substantiating their flushability claims and for labeling their products appropriately.

Thank you again for the opportunity to provide this testimony. NACWA supports this bill and is willing to provide more detailed information about our work on wipes.

## Attachment A

### Summary of Field Dispersion Tests

City of Vancouver (Washington) staff conducted a series of “in-sewer” tests of marked flushable wipes and toilet paper, dropping them into a manhole and observing their conditions at a downstream collection point. **These field test demonstrate that flushable wipes currently on the market in the U.S., with one possible exception, cannot be considered safe to flush since they travel through real sewers intact, with no dispersion.**

This attachment provides a summary of some of the field tests performed by the City of Vancouver. Complete descriptions of the testing procedures, the products tested, and the results are available upon request.

For each round of tests, staff attached a square of pink duct tape to each side of every flushable wipe and then stapled the two pieces of tape together. The same process was used for toilet paper, except that six consecutive squares of toilet paper were first folded in half, then each side was brought in towards the middle. The final result was a square piece that was six layers thick before being stapled. Each product was marked with its code name and was soaked in three gallons of tap water for 30 minutes, then dropped into the sewer. The products and duct tape markers were removed downstream, then placed on a tarp where they were lightly cleaned and laid out to demonstrate the breakdown that occurred in the pipe. Staff recorded and photographed the condition of each of the wipes.

The following table summarizes the results of July 20 and August 10, 2016 tests in an 8-inch sewer main for the products that were recovered (some products were not recovered at the collection point, due to inexperience with the metal catcher and other factors). If the condition of the product was the same on both dates, only one date is shown in the table. The toilet papers that were tested showed a variety of results. The Charmin Ultra-Strong 2-ply disintegrated nearly completely, and while the Quilted Northern Ultra 3-ply was not completely disintegrated, it was weak and difficult to handle without breaking. The “mystery” toilet paper was a sample supplied by INDA for testing conducted as part of the flushability guidelines update, and the wastewater associations have not been able to determine the brand of this toilet paper. It is extremely strong compared to the other toilet papers tested and does not disperse well in the sewer systems.











Almost all of the flushable wipes currently on the market in the U.S. performed poorly in the field test, showing up at the collection point fully intact. Only the Cottonelle Safeflush Technology dispersed adequately, but only in the test conducted on August 10 – in the July 20 test, this wipes was retrieved fully intact. The reason for this variation is not known.

Several wipes that are not currently on the market in the U.S. performed well in the tests. The Aralar 60g flushable wipe, the Aralar Handsheet, the JP-1 and JP-11 flushable wipes, and the Haso flushable wipe all demonstrated full dispersion, either in the sewer test or in the pre-soak. The exception was the Aralar 60g flushable wipe, which showed full dispersion on July 20, but on August 10 showed significant breakdown but not full dispersion.









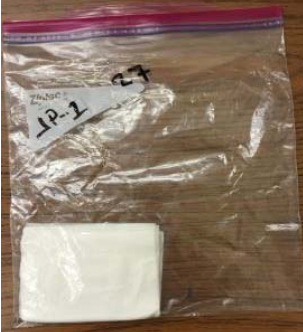

8-in. Sewer Main Tests, Travel Distance of 3300 ft in 30-32 minutes


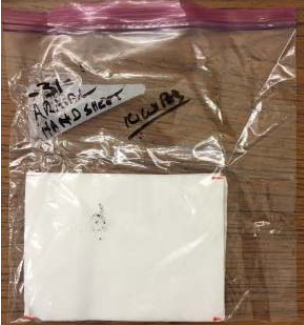



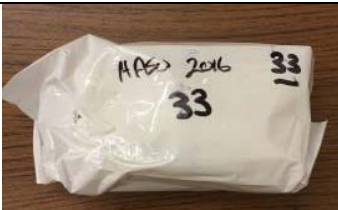
Product & Test Date	Package Photo	Condition at End of Test
Charmin Ultra Strong 2-Ply Toilet Paper – August 10, 2016		
Quilted Northern Ultra 3-Ply Toilet Paper – July 20, 2016		
“Mystery” Toilet Paper – August 10, 2016		
Cottonelle Safeflush Technology – July 20, 2016		



<p>Cottonelle Safeflush Technology – August 10, 2016</p>		
<p>Kirkland Ecoflush Technology – August 10, 2016</p>		
<p>Smart Sense (K-Mart) Flushable Wipe – August 10, 2016</p>		
<p>Great Value Flushable Wipe – August 10, 2016</p>		
<p>Aralar 60g Sample Flushable Wipe – July 20, 2016</p>		



<p>Aralar 60g Sample Flushable Wipe – August 10, 2016</p>		
<p>Up &amp; Up (Target) Flushable Wipe – August 10, 2016</p>		
<p>Dude Wipes Flushable Wipe – August 10, 2016</p>		
<p>AU-2 Limited Sample Flushable Wipe – August 10, 2016</p>		
<p>JP-1 Limited Sample Flushable Wipe – August 10, 2016</p>		

JP-11 Limited Sample Flushable Wipe – August 10, 2016		No samples recovered at collection point, but wipes were fragile and many wipes already had tears when removed from the soaking bucket.
Aralar Handsheet Limited Sample Flushable Wipe – August 10, 2016		
Bob's Butt Wipes Flushable Wipe – August 10, 2016		
Haso 2016 Sample Flushable Wipe – August 10, 2016		No samples were recovered at the collection point, but this wipe achieved full disintegration during the soaking period.

## Attachment B

### Summary of Municipal Pump Test Results

To better understand the impacts of various wipes on the operation of a typical pump used in wastewater collection systems, the wastewater associations performed pump tests at Xylem Water Solutions in Sweden, feeding wipes through a pump and observing the increases in power drawn by the pump and the accumulation of the wipes in the pump. **These tests demonstrated that no flushable wipe currently on the market in the U.S. would be considered safe to flush with a 30-minute pre-soak, due to unacceptable power increases and accumulation in the pump.**

The tests were performed in accordance with FG 507, Municipal Pump Test, from the INDA/EDANA *Guidance Document for Assessing the Flushability of Nonwoven Consumer Products, Edition 3, June 2013*. This test uses a single channel impeller and assesses power increase to determine if a product is compatible with a municipal pump. The FG507 passing criteria of 15% over base power draw (BPD) is based on averaging the data collected every second while wipes are being introduced into the pump. The pump used in the test is a Flygt C3085-434 equipped with an older type of impeller that is common in wastewater systems today.

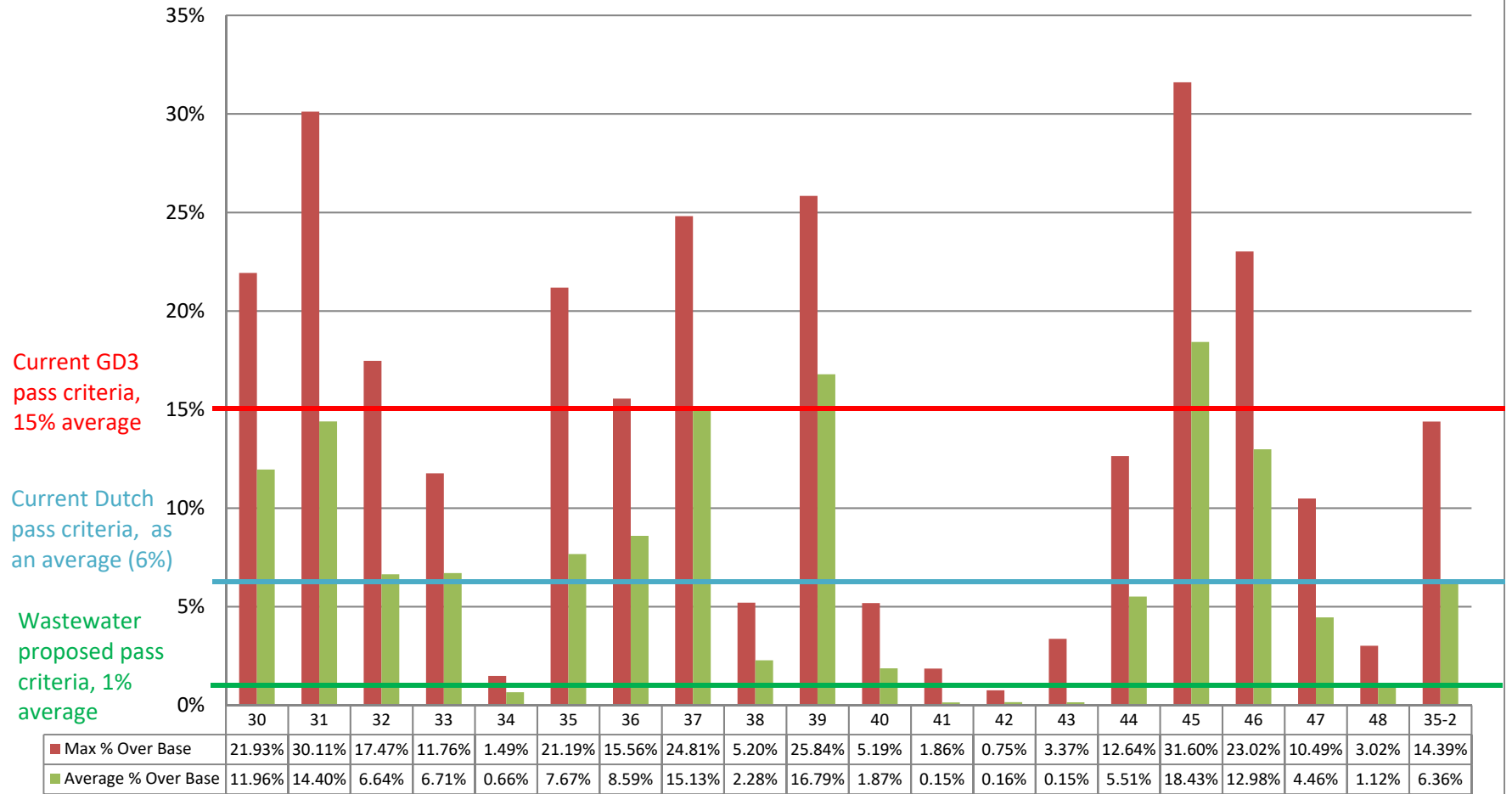
The wipes were soaked in clean tap water at a temperature of 20 degrees Celsius for one hour prior to the tests. The pump was run for 30 minutes before the test to stabilize motor temperature, and the data logger was started five minutes before wipes were introduced to the pump. A wipe is then positioned next to the pump inlet and is drawn into the pump. Wipes are introduced at 10-second intervals until 60 wipes have gone through the pump. If at any time during testing, the pump stops operating due to excessive power draw, triggering the automatic shut-off feature, and the shutdown is linked to wipe accumulation in the impeller chamber, then the test is ended and the product fails.

After the test, the maximum percent power increase of the pump over BPD (before wipes were added) was recorded, and the average percent power draw over the base power draw was calculated. The results are shown below for the wipes that were tested, along with the manufacturer of the wipe substrate and the retail brand of the wipe.

<b>Code</b>	<b>Substrate – Wipe Brand Name</b>	<b>Maximum % Power Draw Over Base</b>	<b>Average % Power Draw Over Base</b>
30	Suominen HydraSprun Flushable – WalMart Great Value/Equate	21.93	11.96
31	US Nonwoven – Kmart Smart Sense (before July 2015)	30.11	14.40
32	Nice-Pak Advanced Flushable Technology – Costco, Target, Safeway	17.47	6.64
33	P&G – Charmin Fresh Mates	11.76	6.71
34	Kimberly Clark SafeFlush Technology – Cottonelle, Scott’s Naturals, Big Kid Pull-Ups	1.49	0.66
35	Nice-Pak EcoFlush Technology – Nice N Clean	21.19	7.67
36	Nehemiah – Kandoo	15.56	8.59
37	Suominen HydraSpun Dispersible – Walgreens Nice Wipe (before mid-2015)	24.82	15.13
38	Unknown - Walgreens Nice Wipe (after mid-2015)	5.20	2.28
39	Buckeye (converted by Nice-Pak) – Costco, Target, Safeway (before early 2014)	25.84	16.79
40	Aralar Araflush 65g	5.19	1.87
41	Aralar Araflush 60g	1.86	0.15
42	Aralar 43g	0.75	0.16
43	Haso Rapid Dissolve Technology – E Care	3.37	0.15
44	Unknown – Sainsbury Dispersible Toilet Wipes	12.64	5.51
45	Unknown – Swedish Makeup Removal Wipe	31.60	18.43
46	<b>30-minute pre-soak</b> , P&G – Charmin Fresh Mates	23.02	12.98
47	<b>30-minute pre-soak</b> , Kimberly Clark SafeFlush Technology – Cottonelle, Scott’s Naturals, Big Kid Pull-Ups	10.49	4.46
48	<b>Cut into 1” pieces</b> , P&G – Charmin Fresh Mates	3.02	1.12
35-2	Re-run of Code 35 with correct signage	14.29	6.36
49-1	US Nonwoven – Kmart Smart Sense (after July 2015)	3.95	1.89
49-2	US Nonwoven – Kmart Smart Sense (after July 2015)	6.90	3.25

These results are also shown in the graph below, along with the current GD3 pass criteria of 15% average power increase over BPD, the Dutch criteria of 10% average power increase over BPD, and the criteria proposed by the wastewater associations of 1% average power increase over BPD.

## Maximum & Average Power Increase Over Base Power



After testing each type of wipe, the pump was cleaned out and any wipes accumulated in the pump were removed and photographed. The following photograph is the accumulated Code 40 wipe, Aralar 65g, which had a maximum and average power increase of 5.19% and 1.86%, respectively, over BPD. These were low power increases compared to most wipes, but still resulted in this level of accumulation:

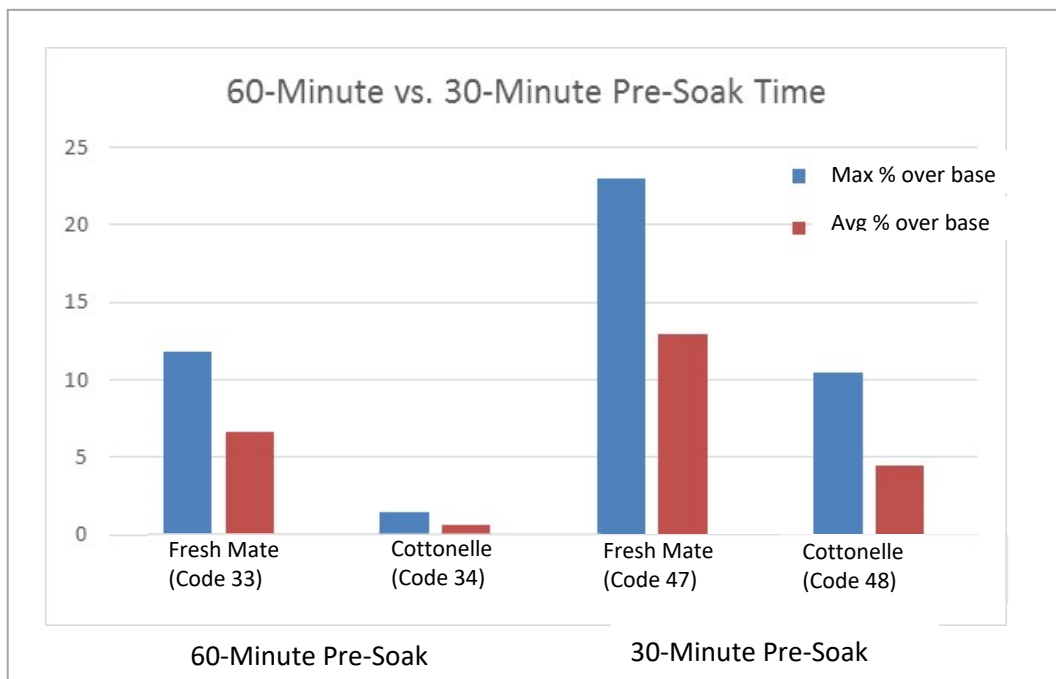


**The wastewater associations believe that a product marketed as flushable should not have any accumulation in the pump.** Wipes with an average power increase of less than 1% over BPD did not result in accumulation in the pump, while wipes even slightly above this value, such as the wipe pictured above, did accumulate.

The wastewater associations also believe that a product marketed as flushable should not have an excessive maximum power draw for the pump, and recommends that a 5% maximum power increase over BPD be set as the limit to avoid unnecessary stress and power usage for the pump.

The pre-soak time for the products is also an important consideration. The current GD3 soak time is one hour, and this was used for all of the products in these pump tests. However, Codes 46 and 47 were the same as Codes 33 and 34, except that a 30-minute soak time was used for Codes 46 and 47. The wipes caused higher maximum and average power draws with the reduced soak time, as shown below:





The wastewater associations believe that the 30-minute soak time is more indicative of the time that a wipe would travel through household plumbing and the municipal sewer system before reaching a pump in many wastewater collection systems. The wastewater associations therefore recommend that the soak time for pump tests be reduced to 30 minutes.

## Attachment C

### International Water Industry Position Statement on Non-flushable and 'Flushable' Labeled Products

# International water industry position statement on non-flushable and 'flushable' labeled products

To prevent problems with sewer systems, pipe and toilet blockages, and the human and environmental cost of sewer overflows and pollution, the organizations signing this statement below agree that:

- Only the 3 Ps – pee, poop, and toilet paper – should be flushed.
- Currently, all wipes and personal hygiene products should be clearly marked as **“Do Not Flush”** and be disposed of in the trashcan.
- Wipes labeled “Flushable” based on passing a manufacturers’ trade association guidance document should be labelled **“Do Not Flush”** until there is a standard agreed to by the water and wastewater industry.
- Manufacturers of wipes and personal hygiene products should give consumers clear and unambiguous information about appropriate disposal methods.
- Looking to the future, new innovations in materials might make it possible for certain products to be flushed, if they pass a technical standard that has been developed and agreed to by the water and wastewater industry\*. Preferably this standard would be developed under the banner of the International Standards Organization (ISO).
- Key requirements for any standard include that the product:
  - a) breaks into small pieces quickly;
  - b) must not be buoyant; and
  - c) does not contain plastic or regenerated cellulose and only contains materials which will readily degrade in a range of natural environments

*\*and in compliance with local legislative requirements*

## GLOBAL SUPPORTERS:



## ORGANIZATION NAMES:

### Australia



### Belgium





## Canada



## Caribbean



## Czech Republic



## Denmark



## Estonia



## France



## Greece



## Ireland



## Israel



## Italy



## Japan



## Latvia



## Lithuania



## Luxembourg





## Malta



## Netherlands



## New Zealand



## Poland



## Portugal



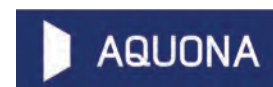
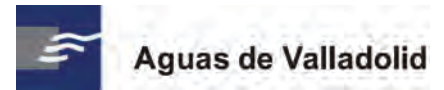
## Slovenia



Chamber of Public Utilities

## Spain









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