



'Flushable' Nightmare

Eric Daniels

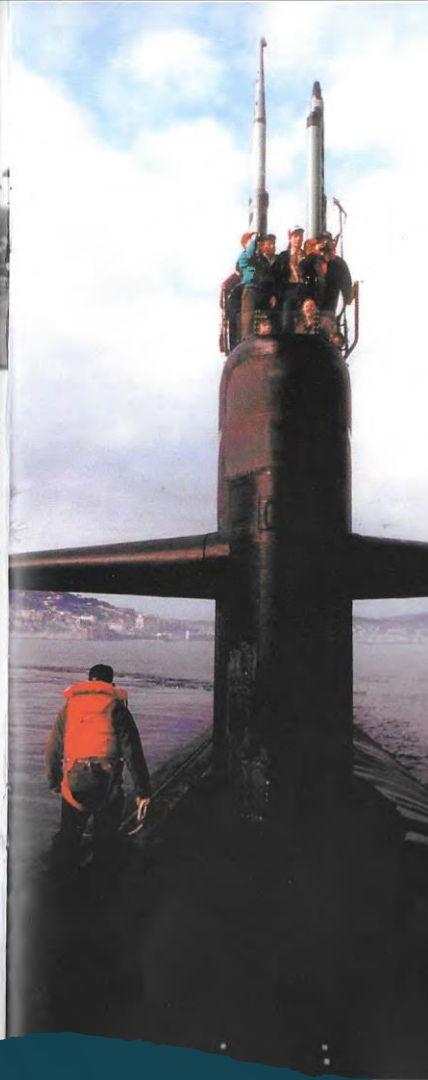


Disclaimer

- The materials being presented represent the opinions of Eric Daniels and do NOT reflect the opinions of NOWRA.

Schedule of Events

- Arrival of Official Party
- National Anthem
- Invocation
- Commanding Officer
COMSUBRON TWO
RDML McLaughlin
- RADM McAneny
- Change of Homeport/Inactivation
- Reading of Orders
- Reports of Decommission
- Benediction
- Departure of Official Party



Eric Daniels

Overview

- What is 'Flushable'?
- INDA & EDANA
- 'Flushable' Testing Protocol
- Impact of Flushable wipes



What is 'Flushable'?

What is 'Flushable'?

- A nonwoven disposable product that “disperses in a short period of time after flushing in the low-force conditions of a sewer system; is not buoyant; and does not contain plastic or any other material that does not readily degrade in a range of natural environments.”



What is 'Flushable'?

- In 2008, the industry standard for use of the word “flushable” for wet wipes and other nonwoven products was created by the North American trade organization the Association of Nonwoven Fabric Industries, also known as INDA.



INDA & EDANA

INDA & EDANA

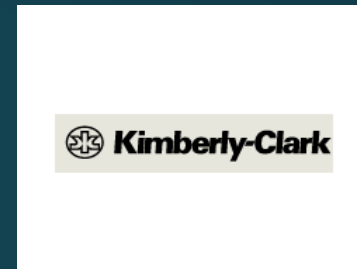
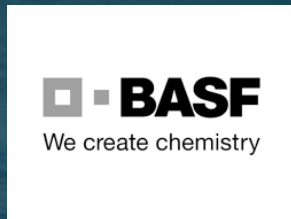
- INDA- Association of the Nonwoven Fabrics Industry
 - North America



- EDANA- “The voice of Nonwovens”
 - Europe, Middle East and Africa



INDA & EDANA Members

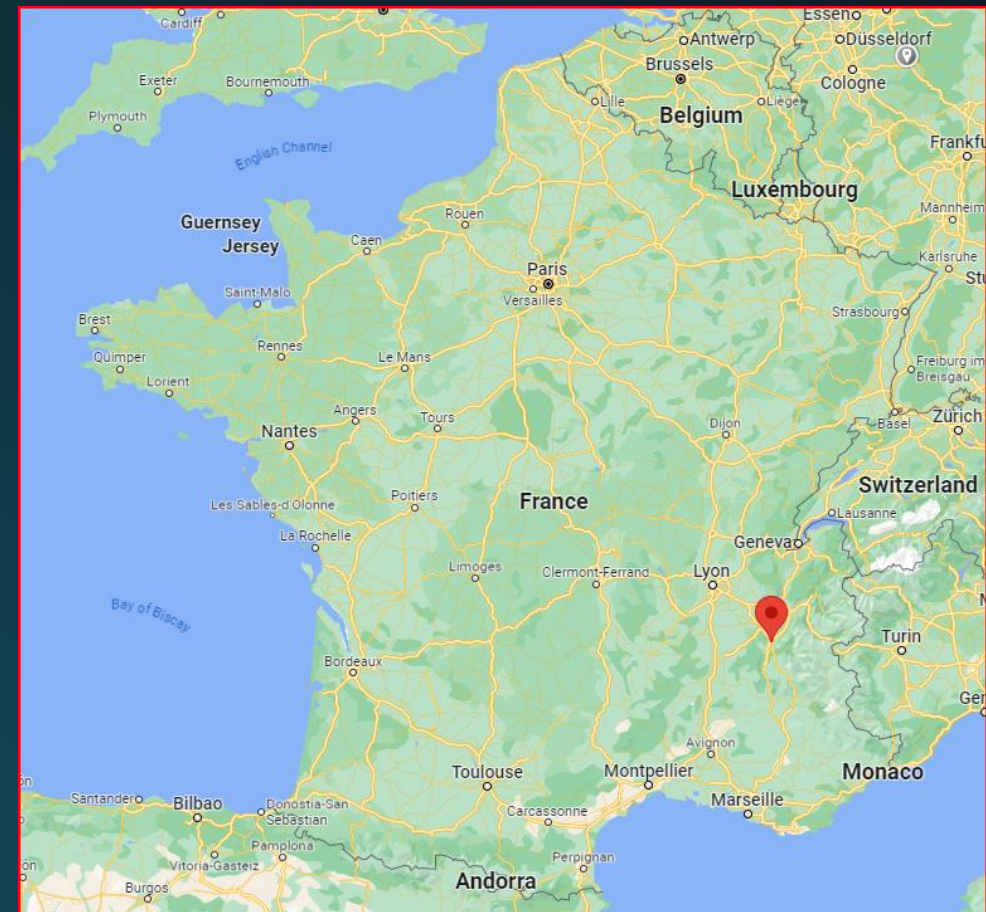
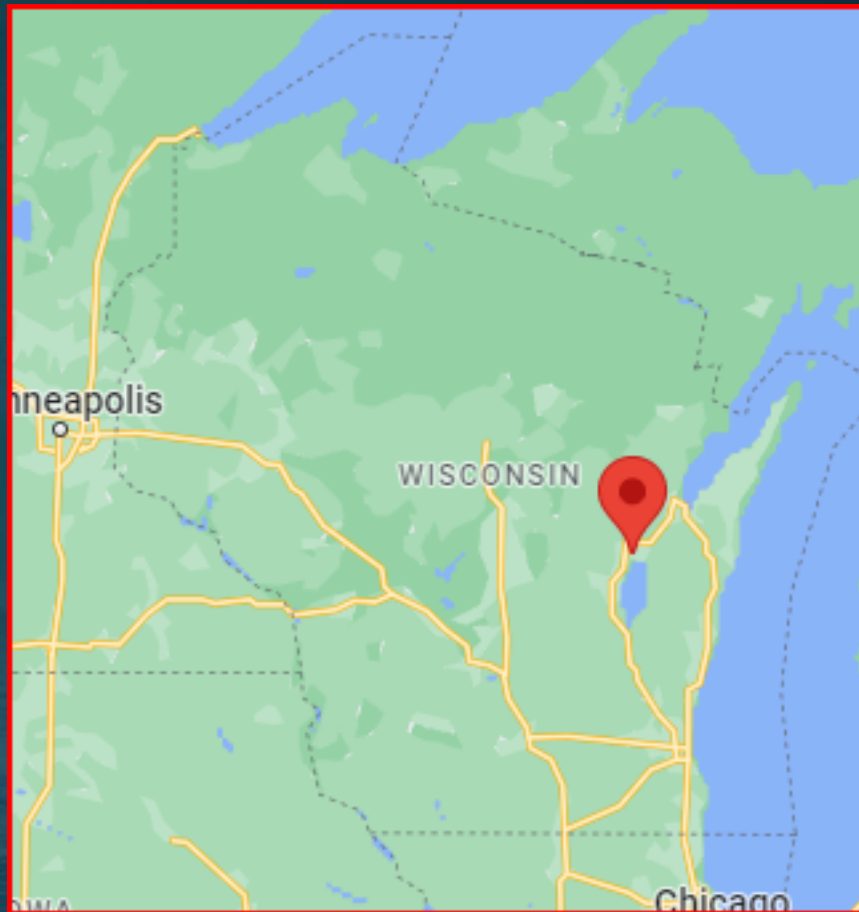


The background of the slide features a vertical strip on the left side showing a close-up of ocean waves with white foam, transitioning into a dark teal gradient that covers the rest of the slide.

INDA & EDANA

- Flushability has been an area of focus for INDA in North America and EDANA in Europe since 2004.
- In 2008, the *First Guidelines for Assessing the Flushability of Disposable Nonwoven Products* was issued to help wipe manufacturers assess whether their product should be flushed into the wastewater stream.
 - Living document, currently on 4th revision (2018).

3rd Party Testing



Flushable Testing Protocol

The Path to Flushability

Will it clog? Will it float? Will it degrade?

INDA and EDANA have used up-to-date lab work and field studies to demonstrate that a wipe passing these seven rigorous tests may be labeled flushable.



Toilet and Drain-line Clearance Test (FG501)

To assess the potential of a disposable nonwoven wipe to successfully clear a toilet and building drainage lines.

Slosh Box Disintegration Test (FG502) ⁱ

To assess the potential for a disposable nonwoven wipe to disintegrate when subjected to mechanical agitation in water.

Household Pump Test (FG503)

To assess the compatibility of a disposable nonwoven wipe with household sewage ejector pump systems.



Aerobic/Anaerobic Biodisintegration/Biodegradation Test (FG505/506)

To assess the potential of a disposable nonwoven wipe to biologically degrade under anaerobic and aerobic conditions found in wastewater treatment processes.

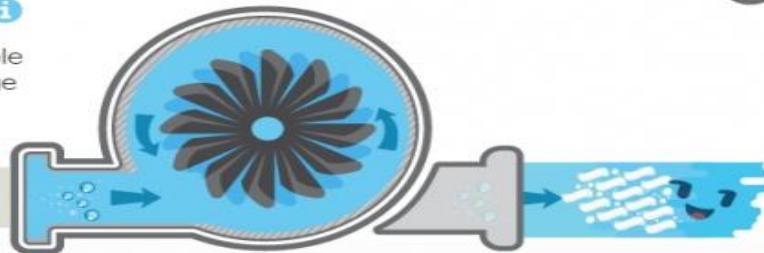
Settling Test (FG504)

To assess the potential of a disposable nonwoven wipe to settle in sumps, septic tanks, on-site aerobic systems and settling chambers.



Municipal Pump Test (FG507) ⁱ

To assess the compatibility of disposable nonwoven wipes with municipal sewage pumping systems.



If it passes these seven tests, you may label your wipe "flushable"

ⁱ Pass/fail standards have been updated for FG502 and FG507.

'Flushable' Testing

- Test 1: Toilet and Drain-Line Clearance Test
- Assess the potential for a nonwoven wipe to successfully clear a toilet and drain lines.



'Flushable' Testing

- Test 2: Slosh Box Disintegration Test
- Assess the ability to disintegrate when subject to mechanical agitation



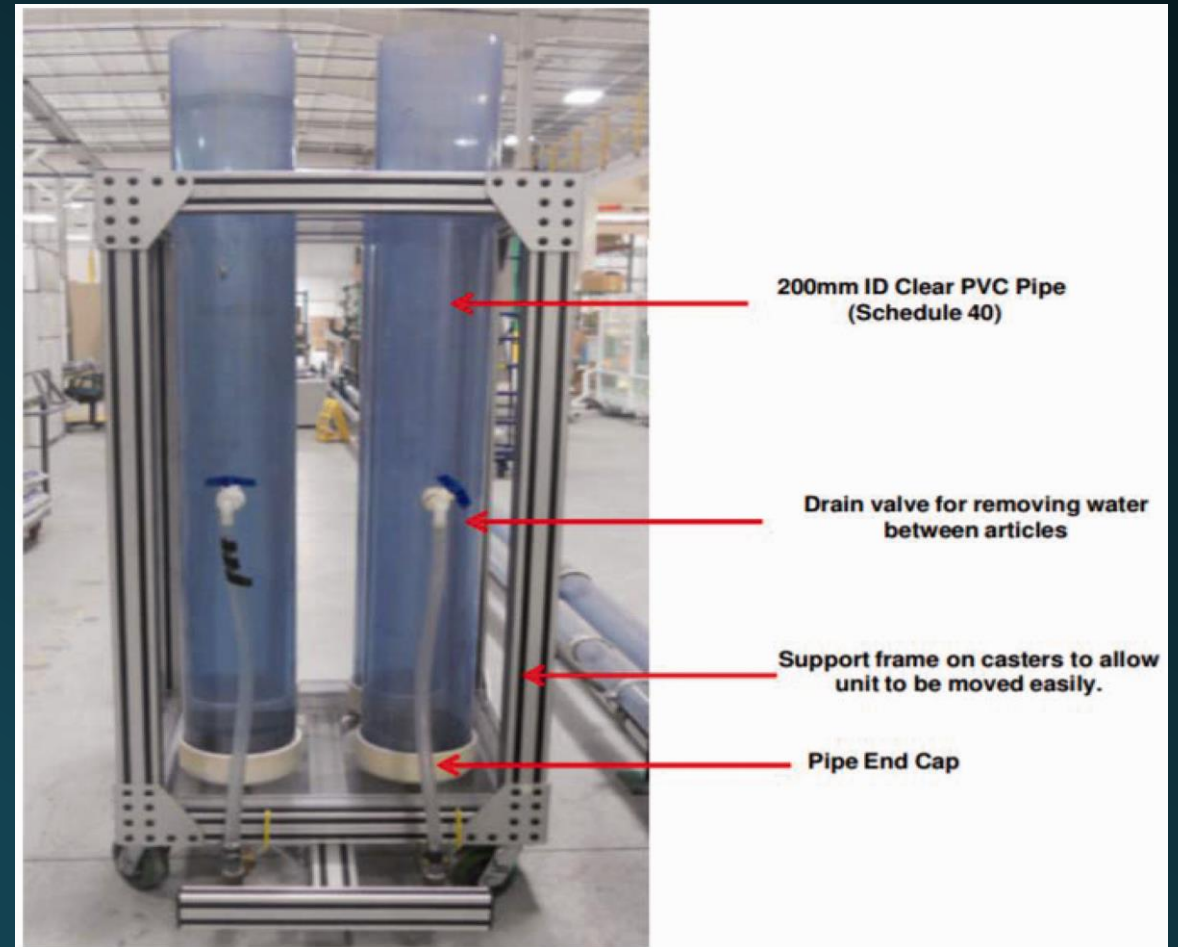
'Flushable' Testing

- Test 3: Household Pump Test
- Assess the compatibility of a wipe with household sewage ejector pump systems.



'Flushable' Testing

- Test 4: Settling Test
- Assess the potential for the wipe to settle in sumps, septic tanks, onsite aerobic systems and settling chambers.



'Flushable' Testing

- Test 5: Aerobic Biodisintegration/ Biodegradation Tests
- Assess the wipes' ability to biologically degrade under aerobic conditions.



'Flushable' Testing

- Test 6: Anaerobic Biodisintegration/ Biodegradation Tests
- Assess the wipes' ability to biologically degrade under anaerobic conditions.



'Flushable' Testing

- Test 7: Municipal Sewage Pump Test
- Assesses the compatibility of wipes with municipal sewage pumping systems.



FIGURE 2: TECHNICAL ASSESSMENT FLOW CHART

| Test | | Assessment and Action |
|---|------------------|---|
| Toilet and Drainline Clearance Test FG 501 | Fail → | Not Flushable. "Do Not Flush" label required. |
| ↓ Pass | | |
| Slosh Box Disintegration Test FG502 | Fail → | Not Flushable. "Do Not Flush" label required. |
| ↓ Pass | | |
| Household Pump Test FG 503 | Fail → | Not Flushable. "Do Not Flush" label required. |
| ↓ Pass | | |
| Settling Test FG504 | Fail → | Not Flushable. "Do Not Flush" label required. |
| ↓ Pass | | |
| Aerobic Biodisintegration/Biodegradation Tests FG505 | Fail → | Not Flushable. "Do Not Flush" label required. |
| ↓ Pass | | |
| Anaerobic Biodisintegration/Biodegradation Tests FG506 | Fail → | Not Flushable. "Do Not Flush" label required. |
| ↓ Pass | | |
| Municipal Sewage Pump Test FG 507 | Fail → | Not Flushable. "Do Not Flush" label required. |
| ↓ Pass | | |
| Flushable Claim Appropriate | | |

If the Wipe Passes all 7 tests then manufacturer can use Flushable label



Impact of Flushable Wipes



'Flushable' Field Studies

- A breakdown of flushed products identified in three field studies of pump station inlet screens, carried out by INDA
 - 47% Non-flushable Paper (Paper hand towels, tissues/napkins, etc.)
 - 18% Non-flushable Baby wipes
 - 14% Non-flushable Household wipes (Surface, cosmetic, & medicated wipes, etc.)
 - 13% Non-flushable Feminine hygiene (tampons, pads, wrappers, etc.)
 - 8% Flushable wipes (wipes labeled as flushable)

'Flushable' Field Studies (2016)

All Materials Recovered – Bronx Channel Sort

| All Materials Recovered | Count | % |
|--------------------------------|--------------|---------------|
| Trash | 100 | 30.0% |
| Baby Wipes | 97 | 29.1% |
| Paper Towels | 62 | 18.6% |
| Nonflushable Wipe | 17 | 5.1% |
| Feminine Hygiene Products | 14 | 4.2% |
| Feminine Wipes | 11 | 3.3% |
| Surface Cleaning Wipes | 10 | 3.0% |
| Facial Wipes | 7 | 2.1% |
| Bath Wipes | 5 | 1.5% |
| Flushable Wipes | 4 | 1.2% |
| Hand Wipes | 2 | 0.6% |
| Medical | 2 | 0.6% |
| Mechanic/Shop Wipes | 1 | 0.3% |
| Other Wipe- Pacifier | 1 | 0.3% |
| Totals | 333 | 100.0% |

'Flushable' Field Studies (2016)

Breakdown of Wipes Recovered – Bronx Channel Sort

| Wipe Materials Recovered | Count | % |
|---------------------------------|--------------|---------------|
| Baby Wipes | 97 | 61.8% |
| Nonflushable Wipe | 17 | 10.8% |
| Feminine Wipes | 11 | 7.0% |
| Surface Cleaning Wipes | 10 | 6.4% |
| Facial Wipes | 7 | 4.5% |
| Hand Wipes | 2 | 1.3% |
| Flushable Wipes | 4 | 2.5% |
| Bath Wipes | 5 | 3.2% |
| Medical Wipes | 2 | 1.3% |
| Mechanic/Shop Wipes | 1 | 0.6% |
| Other Wipe - Pacifier | 1 | 0.6% |
| Totals | 157 | 100.0% |

For the Bronx sample, a summary of recovered wipes is as follows:

| | |
|--|--------------|
| Wipes Identified by Brand= | 126 |
| Total Wipes Recovered= | 157 |
| % Identified= | 80.3% |
| # of Unique Category/Brands Identified= | 33 |

'Flushable' Field Studies (2016)

Table 6 - Brands of Identified Wipes

Wards Island - Bronx: Sort - Feb 17, 2016

| Category and Brand | Number Recovered |
|--|------------------|
| Baby: Huggies- Unknown version | 33 |
| Baby: Amazon Elements | 13 |
| Baby: Huggies Pure/ Soft Skin | 12 |
| Feminine Hygiene: Soft & Gentle | 8 |
| Baby: Pampers Baby Fresh | 6 |
| Baby: Well Beginnings, etc (Rockline) | 6 |
| Baby: Well Beginnings Scented (Nutex) | 5 |
| Surface Cleaning: Total Home (CVS) | 4 |
| Baby: Pampers Sensitive | 4 |
| Baby: Parents Choice (WalMart) | 4 |
| Baby: Huggies Natural Care | 3 |
| Facial: Cetaphil | 3 |
| Baby: Marvel Super Hero | 2 |
| Bath: Parents Choice (WalMart) | 2 |
| Feminine Hygiene: Playtex Personal | 2 |
| Baby: Seventh Generation | 1 |
| Baby: Babyganics Hand, Face, and Baby | 1 |
| Baby: Bumboosa | 1 |
| Baby: Honest Co | 1 |
| Baby: Huggies Cucumber | 1 |
| Baby: Little Ones | 1 |
| Baby: Members Mark (Sam's Club) | 1 |
| Baby: Water Wipes | 1 |
| Bath: equate (WalMart) | 1 |
| Facial: Murad | 1 |
| Facial: Up & Up Pink Grapefruit (Target) | 1 |
| Feminine Hygiene: Clarisse | 1 |
| Flushable: Kirkland (Costco) | 1 |
| Flushable: Wipe 'N Fresh | 1 |
| Hand: CVS Face & Hand | 1 |
| Hand: Purell Sanitizing | 1 |
| Medical: Clorox Care Concepts | 2 |
| Other: NUBY (Pacifier) | 1 |

Wipes Identified by Brand= 126

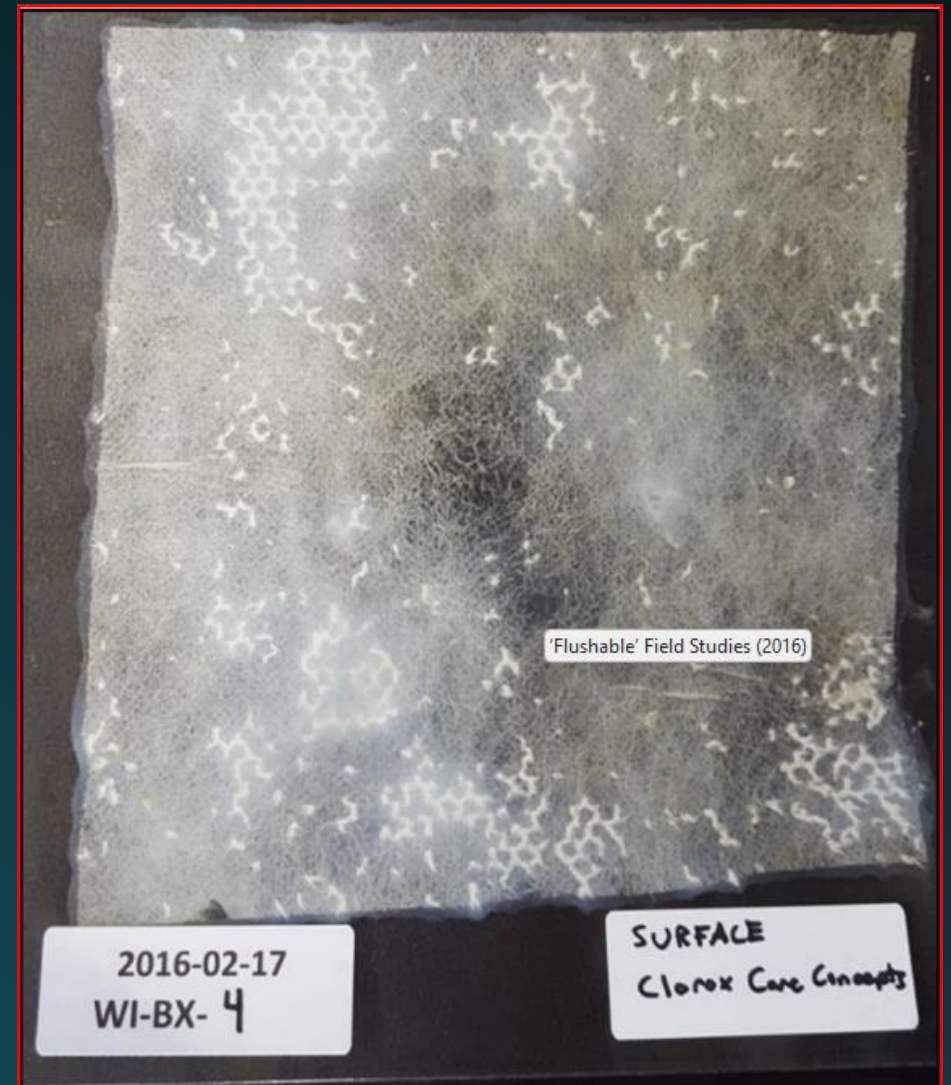
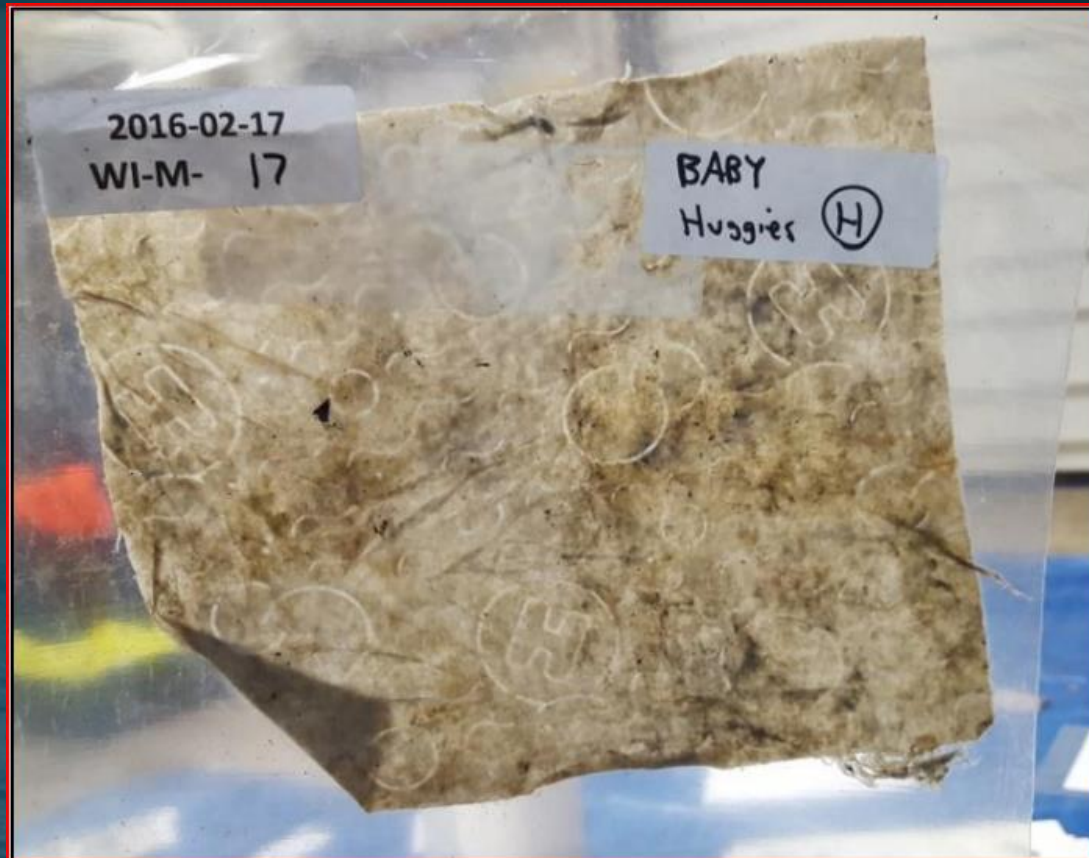
Total Wipes Recovered= 157

% Identified= 80.3%

of Unique Category/Brands Identified= 33



'Flushable' Field Studies (2016)



Questions?