Grenoble, July 22nd, 2011

STUDY REPORT
nr° 11.0568/1 EN

SUBJECT: Flushability assessment on non woven product

SAMPLE(S)

Designation(s):

- Embossed Web Double S 55 FSC Mixed 70% - Multibonded Airlaid

ORDER

V/ Re : Purchase Order Nr 0000216 dated on April 1st, 2011

Customer : Mr Cesare BUBBICO

Company : MAIN SPA

TESTS

Business Unit : Performance, Quality and Standardisation of Paper & Board

Responsible for the tests: Laurence LEROY **Visa**

Technical in charge : Nicole BOFELLI

Timetable : Tests performed on week 15, 19 and 22 to 29, 2011

The copy of this report is authorised in the uncut version only
This report is made of 23 pages (including cover) and 7 appendices

Results are valid only for the samples considered.
They do not apply:

- *For products converted from tested raw materials*
- *For raw materials used to manufacture the tested converted products.*

Contents

1 INTRODUCTION

This flushability assessment refers to the Guidance Document for Assessing the Flushability of Nonwoven Consumer Products published by INDA (US-based association of nonwoven fabrics industry) and EDANA (European-based international association serving the nonwovens and related industries), Edition July 2009.

For a product to be flushable, it must :

- Clear toilets and properly maintained drainage pipe systems under expected product usage conditions;
- Be compatible with existing wastewater conveyance, treatment, reuse and disposal systems;
- Become unrecognisable in a reasonable period of time and be safe in the natural receiving environments.

For a product to be deemed flushable, the first step is to pass through the building's toilet and drainline system, including toilets and household pumps.
If the product passes this first step, it must then be compatible with wastewater conveyance and treatment systems, namely :

Onsite treatment (septic tanks)
Municipal waste water treatment
Untreated discharge

For each of these 3 types of systems, the product must answer to a set of key questions in relation with dispersibility, settling, aerobic and anaerobic biodisintegration for each of the routes that it could follow post-flushing. The complete set of questions contained within the Flushability Assessment can be answered with the five Tier One test methods and their corresponding acceptance criteria in most favorable cases ; if not, Tier Two test methods may be proposed.

2 MATERIAL REFERENCE

The following sample has been tested:

- Embossed Web Double S 55 FSC Mixed 70% - Multibonded Airlaid

3 TESTING METHODS

Initially, the capacity of the product to pass through toilets and drainlines under the normal conditions of use is evaluated at the level of the laboratory, i.e. the following tests of Tier 1 following are carried out on the product:

- FG 510.1 TIER 1 - TOILET BOWL & DRAINLINE CLEARANCE TEST
- FG 511.1 TIER 1 - DISPERSABILITY SHAKE-FLASK TEST
- FG512.1 TIER 1 - COLUMN SETTLING TEST

If the product passes these first tests of Tier 1, its capacity to pass through toilets and drainlines under the normal conditions of use is established. In this case, the flushability assessment is continued with tests dedicated to aerobic and anaerobic biodesintegration.

When the capacity of the product to pass through toilets and drainlines is established, its compatibility with the waste water treatment systems must be checked.

The questions that must be answered by the product rest partly on the results of the tests carried out at STEP 1. Two additional tests must be performed:

- FG 513.1 TIER 1 - AEROBIC BIODISINTEGRATION TEST
- FG 514.1 TIER 1 - ANAEROBIC BIODISINTEGRATION TEST

A summary description of each test is given below.

- FG 510.1 TIER 1 - TOILET BOWL & DRAINLINE CLEARANCE TEST

The purpose of the test is to determine the clogging potential of a product as it passes through a toilet and drainage pipe system.
The proposed test system consists of toilets and drainlines representative of those found in Western Europe (wash-down type, flush volume 3L / 4.5 L, pipe diameter 100 mm, pipe slope 2%). Each trial consists of 10 product flushes and each trial is run in triplicate (total of 30 product flushes). The product is placed in the toilet during 10 seconds to allow time for product to wet out. Then it is flushed. The evacuation of the toilet is observed and the location (distance) in the drainline is recorded after every flush.

- FG 511.1 TIER 1 - DISPERSIBILITY SHAKE-FLASK TEST

The purpose of the test is to assess the dispersability (physical break-up) of a product during transport through household sewage pumps and municipal collection systems.
The product is placed in a flask with tap water and shaken on a rotary shaker table. Periodically, flasks are removed and their contents are passed through a series of screens. The various size fractions retained on the screens are weighed and rate and extend of disintegration are determined.

- FG512.1 TIER 1 - COLUMN SETTLING TEST

The purpose of the test is to assess the rate of product settling in wastewater
treatment systems (e.g., septic tanks, grit chamber, primary and secondary clarifiers, and sewage pump basin and lift station wet wells).
The column settling test is used to quickly identify products that may not settle at an adequate rate to be removed in these various wastewater treatment systems.

- FG 513.1 TIER 1 - AEROBIC BIODISINTEGRATION TEST

The purpose of the test is to assess the biological disintegration of a flushable product in aerobic environments. Product is placed into culture flasks containing activated sludge. At sampling days (7 and 28 days), the contents of the flasks are passed through a 1mm screen.

- FG 514.1 TIER 1 - ANAEROBIC BIODISINTEGRATION TEST

The purpose of the test is to assess the biological disintegration of a flushable product in anaerobic environments. Product is placed into bottles containing anaerobic digester sludge and put into an incubator. At sampling days (7 and 28 days), the contents of the flasks are passed through a 1 mm screen.

Due to product failure to the Tier 1 Dispersibility Shake Flask Test, two additional disintegration test were performed, corresponding to FG 522.2 TIER 2 – SLOSH BOX DESINTEGRATION TEST and to FG521.1 TIER 2 – HOUSEHOLD PUMP TEST, which are summarized below :

- FG 522.2 TIER 2 – SLOSH BOX DESINTEGRATION TEST

The product is placed with tap water in a clear plastic box that is moved up and down by a cam system. After 6 hours, the boxes are removed and their contents are passed through a series of screens. The various size fractions retained on the screens are weighed and rate and extend of disintegration are determined.

- FG521.1 TIER 2 – HOUSEHOLD PUMP TEST

The purpose of this test is to assess the compatibility of a product with household pumping systems. Such systems are used to discharge waste water when the plumbing fixtures are installed below the sewer lines. The product is dosed via a toilet to a basin where a grinder pump resides. The pump is periodically activated depending on the water-level sensor, and the contents is evacuated from the basin.
A 7-days equivalent trial consists of a sequence of 119 flushes, on a base of 70 product flushes and 49 empty flushes.
The product passed the test if no blocage of the pump occurs during the test and if the material do not accumulate in the basin.
The product failed the test if blocage of the pump occurs during the test. If product accumulates in the basin without pump blocage, the test is repeated again 4 times to simulate 28 days of normal use.

4 RESULTS AND COMMENTS

Sheets results corresponding to each test are given in Appendix.
Comments are given hereafter.

4.1 TESTS ON PRODUCT EMBOSSED WEB DOUBLE S 55 FSC MIXED 70% - MULTIBONDED AIRLAID

4.1.1 FG 510.1 TIER 1 - TOILET BOWL & DRAINLINE CLEARANCE TEST

	Test 1	Test 2	Test 3	Mean (%)
Bowl and trap clearance on 1 flush	10	9	10	96.7
Bowl and trap clearance on 2 flushes	**10**	**10**	**10**	**100.0**
Clear 10m on 1 flush	5	5	7	56.7
Clear 10m on 2 flushes	**10**	**10**	**10**	**100.0**

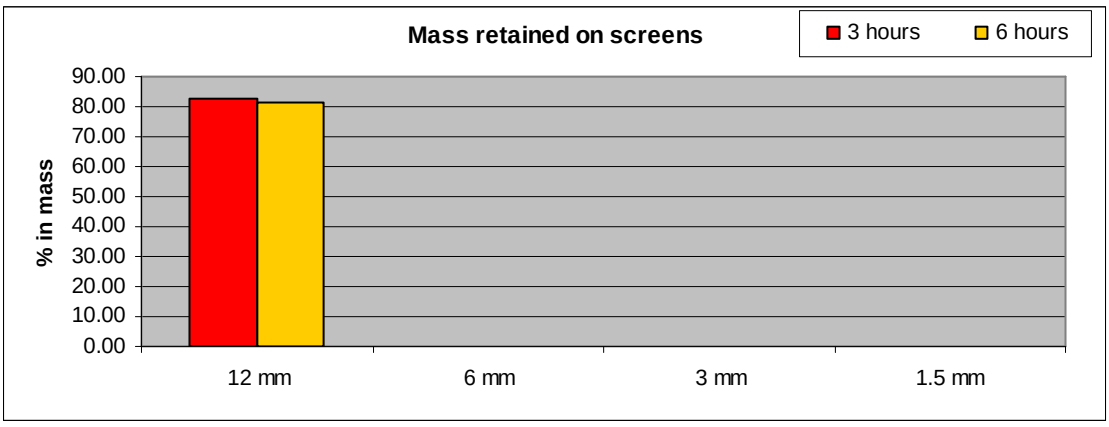
Response to acceptance criteria (*) :

Product clears toilet bowl and trap on 90% of flushes (Q1.1)	**YES**
Product clears 10 m on 2 flushes (Q1.2, 3.1a)	**YES**
Center of mass not showing downward trend for 5 consecutive flushes (Q1.2, 3.1a)	**YES**

(*) Guidance Document for Assessing the Flushability of Nonwoven Consumer Products Second Edition - July 2009, published by EDANA / INDA

Comments:
Despite very conservative testing conditions with a low flush volume (3 litres), the product completely fulfilled the acceptance criteria for this test and answered positively to all the questions is relation with this test. It was evacuated properly from the toilet bowl and cleared the drainline without any accumulation of wipes in the drainline.

4.1.2 FG 511.1 TIER 1 - DISPERSIBILITY SHAKE-FLASK TEST



Response to acceptance criteria (*) :

Passes through screen 12 mm after 3 hours :	**17.23 %**	**Q1.3, 3.1b : NO**
Retained on screen 12 mm after 6 hours :	**81.19 %**	**Q3.2a : NO**
Passes through screen 3 mm after 6 hours :	**18.81 %**	**Q3.2b : NO**
Passes through screen 1.5 mm after 6 hours :	**18.81 %**	**Q4.1 : NO**

(*) Guidance Document for Assessing the Flushability of Nonwoven Consumer Products Second Edition - July 2009, published by EDANA / INDA

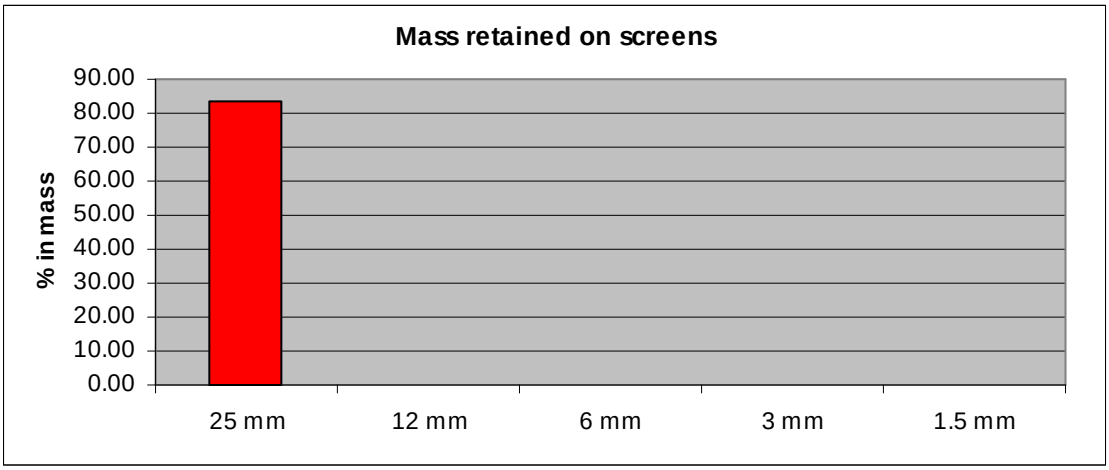
Comments:
The product did not disintegrate after 3 hours or 6 hours of agitation. The main fraction of the material was retained on the 12 mm, thus the acceptance criteria related to clogging of building pumps or sewer or lift station pumps is not fulfilled according to results obtained with this Tier 1 test method.

To be more precise :

- The product compatibility with houses having building pumps and with sewer or lift station pumps is not proven. According to acceptance criteria in relation with this Tier 1 test method, to be compatible with such pumps, greater than 95% of the product mass must pass through a 12-mm sieve after 3 hours of agitation (result obtained by the product: 17.23%). **Otherwise, the product must be submitted to Tier 2 test method (slosh box test or household pump test).**
- The product will not be removed by screens in municipal wastewater treatment systems. To be effectively removed by screening, greater than 95% of the product mass must be retained on a 12-mm sieve after 6 hours agitation (result obtained by the product: 81.19%).
- The product will not pass through screens to enter secondary treatment in municipal wastewater treatment systems. To enter secondary treatment, greater than 95% of the product mass must pass through a 3-mm sieve after 6 hours agitation (result obtained by the product: 18.81%).
- The product will not disintegrate during sewer conveyance for the untreated discharge scenario. To disintegrate in sewer, greater than 95% of the product mass must pass through a 1.5-mm sieve after 6 hours agitation (result obtained by the product: 18.81%).

Consequently, the product was submitted to Tier 2 test method Slosh Box Disintegration Test.

4.1.3 FG 522.2 TIER 2 – SLOSH BOX DISINTEGRATION TEST

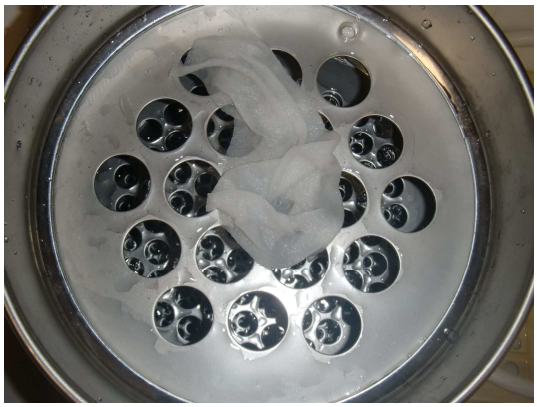


Response to acceptance criteria (*) :

Passes through screen 25 mm after 6 hours :	**16.53 %**	**Q1.3, 3.1b : NO**
Retained on screen 12 mm after 6 hours :	**83.47 %**	**Q3.2a : NO**
Passes through screen 3 mm after 6 hours :	**16.53 %**	**Q3.2b : NO**
Passes through screen 1.5 mm after 6 hours :	**16.53 %**	**Q4.1 : NO**

(*) Guidance Document for Assessing the Flushability of Nonwoven Consumer Products
Second Edition - July 2009, published by EDANA / INDA

Comments:
The product did not disintegrate after 3 hours or 6 hours of agitation. The main fraction of the material was retained on the 12 mm as a single wipe as shown in the picture above. Thus the acceptance criteria related to clogging of building pumps or sewer or lift station pumps is not fulfilled according to results obtained with this Tier 2 test method.



Product on the 25 mm sieve after 6 hours of agitation

To be more precise :

- The product will not be compatible with houses having building pumps and with sewer or lift station pumps. To be compatible with such pumps, greater than 95% of the product mass must pass through a 25-mm sieve after 6 hours of agitation (result obtained by the product: 16.53%). **Otherwise, the product must be submitted to Tier 2 Household pump test**
- The product will not be removed by screens in municipal wastewater treatment systems. To be effectively removed by screening, greater than 95% of the product mass must be retained on a 12-mm sieve after 6 hours agitation (result obtained by the product: 83.47%).
- The product will not pass through screens to enter secondary treatment in municipal wastewater treatment systems. To enter secondary treatment, greater than 95% of the product mass must pass through a 3-mm sieve after 6 hours agitation (result obtained by the product: 16.53%).
- The product will not disintegrate during sewer conveyance for the untreated discharge scenario. To disintegrate in sewer, greater than 95% of the product mass must pass through a 1.5-mm sieve after 6 hours agitation (result obtained by the product: 16.53%).

Consequently, the product was submitted to Tier 2 test method Household Pump Test.

4.1.4 FG 521.1 TIER 2 – HOUSEHOLD PUMP TEST

7-day equivalent:

Pump clogging during the test (YES/NO): NO

Amount of product in pump basin at the end of test run: 36 WIPES

Amount of product in pump, check valve and drainline: 9 WIPES IN PUMP CHAMBER

Observation of product in collection basin: ENTIRE WIPES

28 days equivalent test necessary (YES/NO): YES

28-day equivalent:

Pump clogging during the test (YES/NO): NO

Amount of product in pump basin at the end of test run: 35 WIPES

Amount of product in pump, check valve and drainline: NO

Response to acceptance criteria (*) :

7-day equivalent		
Blockage in the pump	NO	
Residual material in pump chamber / check valve	NO	
More than 3 flush load in pump basin	YES	
28-day equivalent		
Blockage in the pump	NO	
Additional accumulation in pump chamber / valve	NO	**Q1.3, 3.1b: NO**
Additional accumulation in pump basin	NO	

(*) Guidance Document for Assessing the Flushability of Nonwoven Consumer Products Second Edition - July 2009, published by EDANA / INDA

Comments :

The product did not cause blocage of the pump nor accumulation in the basin. Wipes are still as single pieces after passing through the pump and a quite high number of wipes is found in the basin at the end of the test (around 30) but this number remains stable and wipes should not further accumulate.

4.1.5 FG 512.1 TIER 1 - COLUMN SETTLING TEST

If product settles :	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Test 8	Test 9	Test 10	Mean
Time to settle 100 cm (in s)	80	87	77	20	75	110	69	95	108	56	77.7
Settling rate (cm/second)	1.25	1.15	1.30	5.00	1.33	0.91	1.45	1.05	0.93	1.79	2.01

Response to acceptance criteria (*) :

Product settles to bottom of column in 24 h: YES	**Q1.3 : YES**
Product settles > 0.1 cm/s : YES	**Q2.1, 2.3, 3.5 : YES**
Product settles > 2 cm/s : YES	**Q3.3 : YES**

(*) Guidance Document for Assessing the Flushability of Nonwoven Consumer Products
Second Edition - July 2009, published by EDANA / INDA

Comments:

The product settles and will be compatible with systems such as septic tanks and grit chambers.

4.1.6 FG 513.1 TIER 1 – AEROBIC BIODESINTEGRATION TEST

Percentage of product disintegration (expressed in percent mass loss / positive control):

Sample	After 14 days	After 28 days
Positive control in activated sludge	100.00	100.00
Product in activated sludge (flask 1)	100.00	78.16
Product in activated sludge (flask 2)	100.00	76.06
Product in activated sludge (flask 3)	100.00	79.31
Product in activated sludge (mean)	100.00	77.84

Response to acceptance criteria (*) :

Passes through 1mm sieve after 28 days: 77.84 %
Q2.2a, 2.4, 3.5, 3.6, 3.7, 4.2 : NO

(*) Guidance Document for Assessing the Flushability of Nonwoven Consumer Products
Second Edition - July 2009, published by EDANA / INDA

Comments:
After 28 days of exposure with aerobic activated sludge, the product is partially desintegrated (77.84%) when compared to the biodegradable positive control (100%).

4.1.7 FG 514.1 TIER 1 – ANAEROBIC BIODISINTEGRATION TEST

Percentage of product disintegration (expressed in percent mass loss / positive control):

Sample	After 14 days	After 28 days
Positive control in activated sludge	100.00	100.00
Product in activated sludge (flask 1)	100.00	79.88
Product in activated sludge (flask 2)	100.00	77.02
Product in activated sludge (flask 3)	100.00	79.94
Product in activated sludge (mean)	100.00	78.95

Response to acceptance criteria (*) :

Passes through 1mm sieve after 28 days: 78.95 %
Q2.2a, 2.4, 3.5, 3.6, 3.7, 4.2 : NO

(*) Guidance Document for Assessing the Flushability of Nonwoven Consumer Products Second Edition - July 2009, published by EDANA / INDA

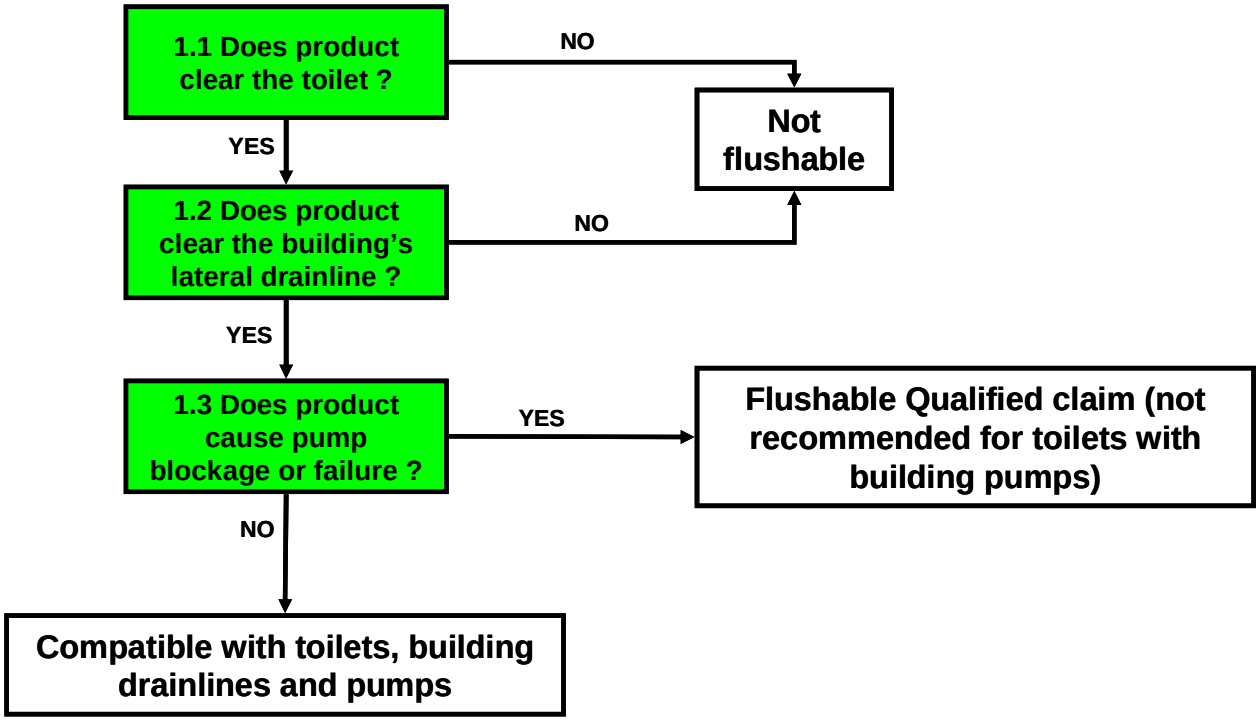
Comments:
After 28 days of exposure with anaerobic activated sludge, the product is partially desintegrated (78.95%) when compared to the biodegradable positive control (100%).

4.2 FLUSHABILITY ASSESSMENT ON PRODUCT EMBOSSED WEB DOUBLE S 55 FSC MIXED 70% - MULTIBONDED AIRLAID

The answers to the set of questions corresponding to each disposal route is presented hereafter.

4.2.1 TOILETS, DRAINLINES AND BUILDING PUMPS

Question	Test and result	Comments
1.1 Does product clear the toilet ?	FG 510.1 **YES**	The product clears the toilet bowl and trap on more than 90% of product flushes.
1.2 Does product clear the building's lateral drainline ?	FG 510.1 **YES**	Using the 3 litres flush volume, the product passes the test with more than 10 m travelled after 2 consecutive flushes and centre of mass not showing downward trend for 5 consecutive flushes.
1.3 Does product cause pump blockage or failure ?	FG 512.1 AND FG 511.1 **YES**	The product settles to the bottom of the column within 24 hours. To be acceptable, greater than 95% of the product mass must pass through a 12-mm sieve after 3 hours of agitation. The obtained result is 17.23% of the product mass passing through 12-mm sieve after 3 hours of agitation.
	FG 512.1 AND FG 522.2 **YES**	To be acceptable, greater than 95% of the product mass must pass through a 25-mm sieve after 6 hours of agitation. The obtained result is 16.53% of the product mass passing through 25-mm sieve after 6 hours of agitation.
	FG 521.1 **NO**	The product passes through the pump without clogging and there is no accumulation of the product in the pump impeller chamber nor in check valve nor in pump basin.



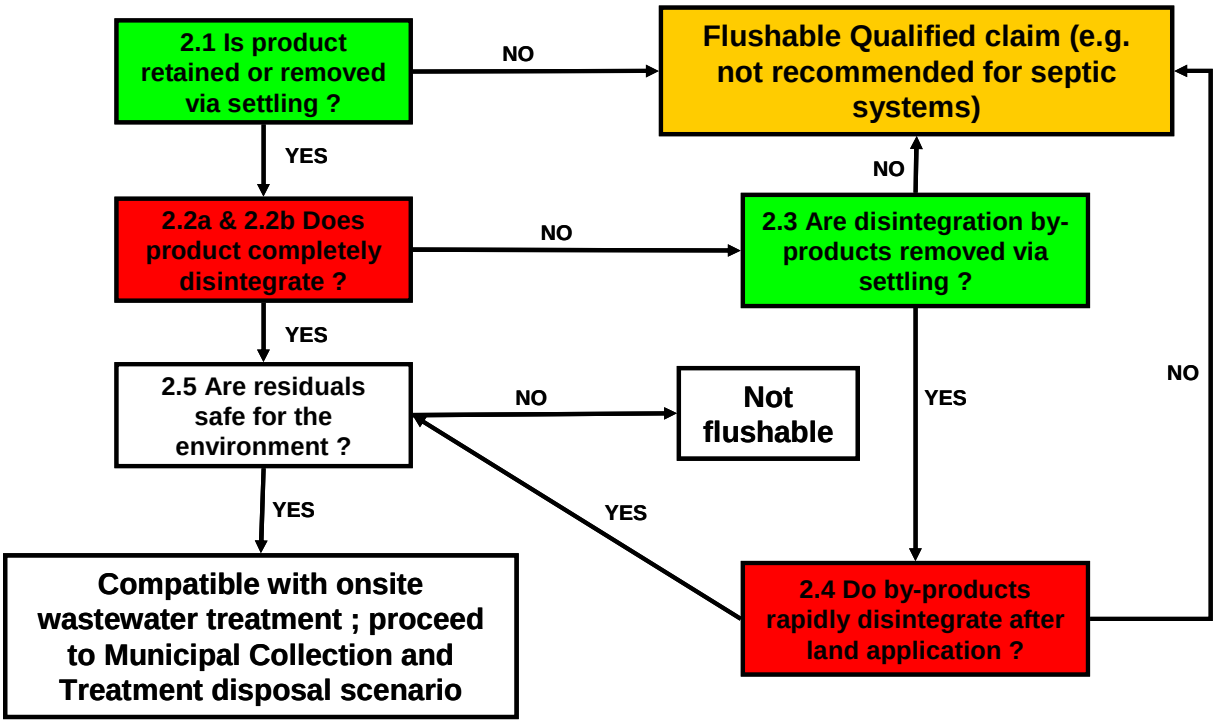
ASSESSMENT:

<u>Compatible with toilets, drainlines and building pumps</u>

The product does pass through the toilets and drainline. It does not disperse and it will be still in large pieces when it reaches the building pump, but it passes through the pump and does not accumulate in pump basin.

4.2.2 ONSITE WASTEWATER TREATMENT (SEPTIC AND AEROBIC SYSTEMS)

Question	Test and result	Comments
2.1 Is the product retained or removed via settling ?	FG 512.1 **YES**	The product does settle at a rate greater than 0.1 cm/s.
2.2a and 2.2b Does the product completely desintegrate ?	FG 513.1 **NO** AND FG 514.1 **NO**	To be acceptable, greater than 95% of the product mass must pass through a 1-mm sieve after 28 days of exposure with activated sludge. The obtained result is 77.84% of the product mass passing through a 1-mm sieve after 28 days of exposure with activated sludge. To be acceptable, greater than 95% of the product mass must pass through a 1-mm sieve after 28 days of exposure with anaerobic digester sludge. The obtained result is 78.95% of the product mass passing through a 1-mm sieve after 28 days of exposure with activated sludge.
2.3 Are non desintegrated components removed via settling ?	FG 512.1 on non-disintegrated components **YES**	The non-disintegrated components do settle at a rate greater than 0.1 cm/s.
2.4 Do components rapidly desintegrate after land application ?	FG 513.1 **NO**	To be acceptable, greater than 95% of the product mass must pass through a 1-mm sieve after 28 days of exposure with activated sludge. The obtained result is 77.84% of the product mass passing through a 1-mm sieve after 28 days of exposure with activated sludge.
2.5 Are residuals safe for the environment ?	EU Technical Guidance Document Not evaluated N/A	Product components must conform to the principles in the EU Technical Guidance Document (TGD) on Risk Assessment of Chemical Substances 2008, 2nd edition. The answer to this question is left under the responsibility of product manufacturer. At this stage, it does not need to be addressed because the product does not biodesintegrate sufficiently to be compatible with septic systems.



ASSESSMENT:

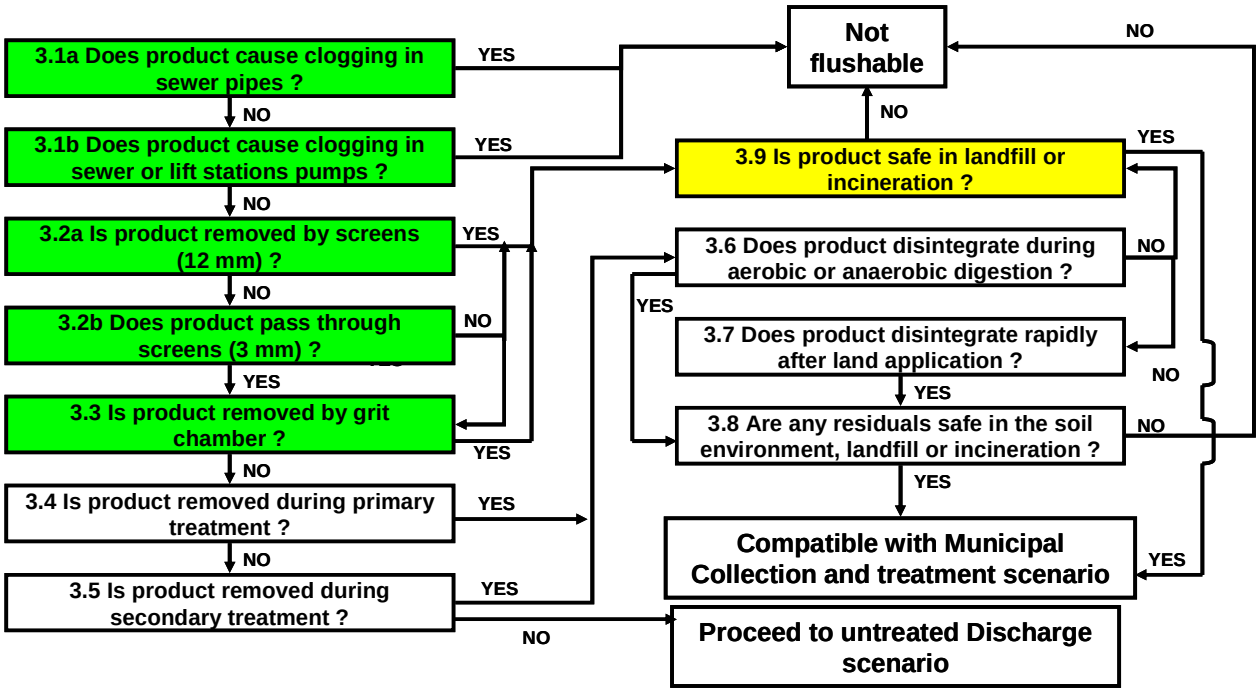
<u>Not recommended for septic systems</u>

The product does not biodisintegrate sufficiently to be compatible with septic systems.

4.2.3 MUNICIPAL COLLECTION AND TREATMENT

Question	Test and result	Comments
3.1a Does product cause clogging in the sewer pipes ?	FG 510.1 **NO**	The product has passed through drainlines so it is assumed that is would move through the sewer pipes.
3.1b Does product cause clogging in the lift stations pumps ?	FG 511.1 **YES** FG 522.2 **YES** FG 521.1 **NO**	To be acceptable, greater than 95% of the product mass must pass through a 12-mm sieve after 3 hours of agitation. The obtained result is 17.23% of the product mass passing through 12-mm sieve after 3 hours of agitation. To be acceptable, greater than 95% of the product mass must pass through a 25-mm sieve after 6 hours of agitation. The obtained result is 16.53% of the product mass passing through 25-mm sieve after 6 hours of agitation. The product passes through the pump without clogging and there is no accumulation of the product in the pump impeller chamber nor in check valve nor in pump basin.
3.2a Is product removed by screens (12 mm) ?	FG 511.1 **NO** FG 522.2 **NO**	To be acceptable, greater than 95% of the product mass must be retained on a 12-mm sieve after 6 hours of agitation. The obtained result is 81.19 % of the product mass retained on a 12-mm sieve after 6 hours of agitation. To be acceptable, greater than 95% of the product mass must be retained on a 12-mm sieve after 6 hours of agitation. The obtained result is 83.47% of the product mass retained on a 12-mm sieve after 6 hours of agitation.
3.2b Does product pass through screens (3 mm) ?	FG 511.1 **NO** FG 522.2 **NO**	To be acceptable, greater than 95% of the product mass must pass through a 3-mm sieve after 6 hours of agitation. The obtained result is 18.81% of the product mass passing through 12-mm sieve after 3 hours of agitation. To be acceptable, greater than 95% of the product mass must pass through a 3-mm sieve after 6 hours of agitation. The obtained result is 16.53% of the product mass passing through 3-mm sieve after 6 hours of agitation.
3.3 Is product removed by grit chamber ?	FG 512.1 **YES**	The product settles at a rate greater than 2 cm per second.

3.4 Is product removed during primary treatment ?	FG 512.1 N/A	This question does not need to be addressed because the product is removed by grit chamber and will not enter further steps in municipal treatment systems.
3.5 Is product removed during secondary treatment ?	FG 513.1 FG512.1 N/A	This question does not need to be addressed because the product is removed by grit chamber and will not enter further steps in municipal treatment systems.
3.6 Does product desintegrate during aerobic or anaerobic digestion ?	FG 513.1 FG 514.1 N/A	This question does not need to be addressed because the product is removed by grit chamber and will not enter further steps in municipal treatment systems.
3.7 Does product disintegrate rapidly after land application ?	FG 513.1 N/A	This question does not need to be addressed because the product is removed by grit chamber and will not enter further steps in municipal treatment systems.
3.8 Are any residuals safe in the soil environment, landfill or incineration ?	EU Technical Guidance Document Not evaluated N/A	This question does not need to be addressed because the product is removed by grit chamber and will not enter further steps in municipal treatment systems.
3.9 Is product safe in landfill or incineration ?	EU Technical Guidance Document Not evaluated N/A	Product components must conform to the principles in the EU Technical Guidance Document (TGD) on Risk Assessment of Chemical Substances 2008, 2nd edition. The answer to this question is left under the responsibility of product manufacturer.



ASSESSMENT:

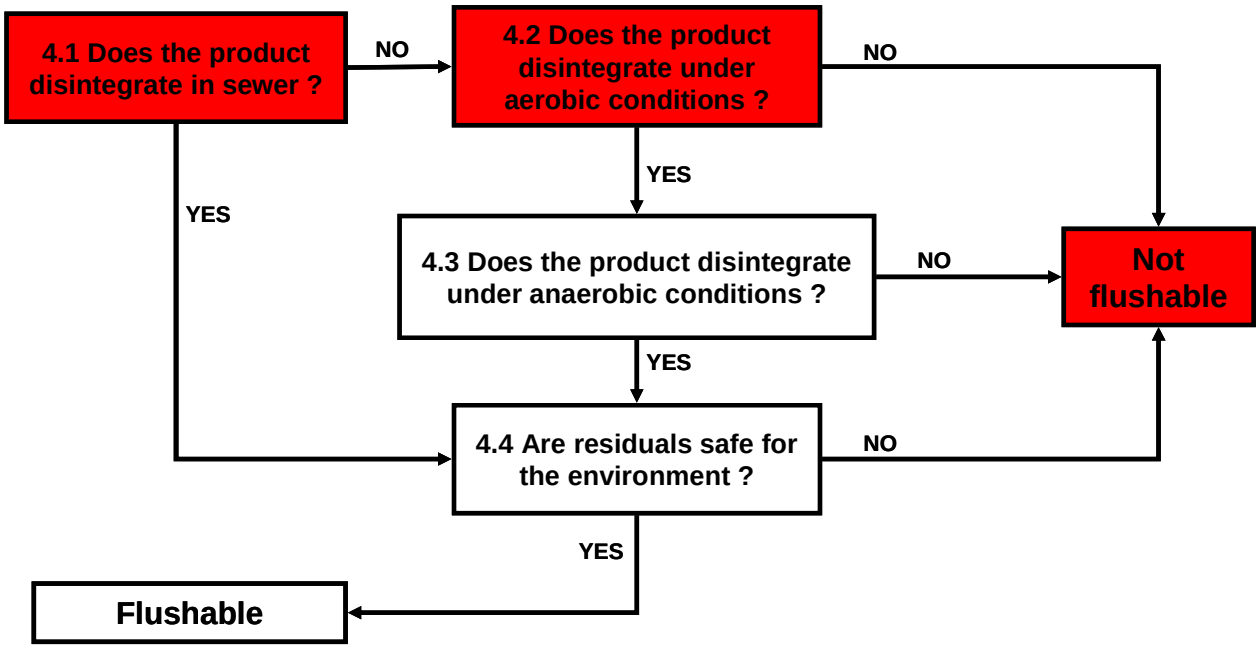
<u>Compatible with Municipal Collection and Treatment Systems, provided that product components are safe for the environment</u>

Due to its high settling rate, the product will be removed in the grit chamber and will not enter further steps in municipal treatment systems. Then it will be collected as a solids disposal and will be landfilled or incinerated.

To be claimed as flushable, the product manufacturer must prove that product components are safe for the environment.

4.2.4 UNTREATED DISCHARGE

Question	Test and result	Comments
4.1 Does the product disintegrate in sewer ?	FG 511.1 **NO** FG 522.2 **NO**	To be acceptable, greater than 95% of the product mass must pass through a 1.5-mm sieve after 6 hours of agitation. The obtained result is 18.81% of the product mass passing through 1.5-mm sieve after 6 hours of agitation. To be acceptable, greater than 95% of the product mass must pass through a 1.5-mm sieve after 6 hours of agitation. The obtained result is 16.53% of the product mass passing through 1.5-mm sieve after 6 hours of agitation.
4.2 Does the product disintegrate under aerobic conditions ?	FG 513.1 **NO**	To be acceptable, greater than 95% of the product mass must pass through a 1-mm sieve after 28 days of exposure to activated sludge. The obtained result is 77.84% of the product mass passing through 1-mm sieve after 28 days of exposure to activated sludge.
4.3 Does the product disintegrate under anaerobic conditions ?	FG 514.1 N/A	This question does not need to be addressed because the product does not disintegrate under aerobic conditions.
4.4 Are residuals safe for the environment ?	EU Technical Guidance Document Not evaluated and non adressed	Product components must conform to the principles in the EU Technical Guidance Document (TGD) on Risk Assessment of Chemical Substances 2008, 2nd edition. The answer to this question is left under the responsibility of product manufacturer. At this stage, it does not need to be addressed because the product does not biodisintegrate sufficiently to be compatible with untreated discharge.



ASSESSMENT:

<u>Not suitable for situations with untreated discharge</u>

As product does not disperse in water not biodisintegrate nor disintegrate sufficiently to become unrecognizable in the environment, it is not suitable for situations with untreated discharge.

5 CONCLUSION

In order to assess the flushability of the product **Embossed Web Double S 55 FSC Mixed 70% - Multibonded Airlaid,** this product has been tested according to tests methods FG510.1, FG511.1, FG512.1, GG 522.2, FG531.1 and FG514.1 described in the Guidance Document for Assessing the Flushability of Nonwoven Consumer Products published by INDA (US-based association of nonwoven fabrics industry) and EDANA (European-based international association serving the nonwovens and related industries), Edition July 2009.

- Results to FG510.1 (TOILET BOWL & DRAINLINE CLEARANCE TEST) show that this product is evacuated properly from the toilet bowl and clear the drainline without any accumulation of product in the drainline. Acceptance criteria in relation with this test would be fulfilled.

- Results to FG512.1 (COLUMN SETTLING TEST) show that this product settles. Acceptance criteria in relation with this test would be fulfilled.

- Results to FG511.1 (DISPERSIBILITY SHAKE-FLASK TEST) show that this product did not really disintegrate after 3 hours or 6 hours of agitation. The material remained as a single piece thus the acceptance criteria related to clogging of building pumps or sewer or lift station pumps is not fulfilled.
  The product was submitted to Tier 2 test method SLOSH BOX DISINTEGRATION TEST and here again the product did not disintegrate, thus the acceptance criteria related to clogging of building pumps or sewer or lift station pumps is still not fulfilled.
  The product was then submitted to Tier 2 test method HOUSEHOLD PUMP TEST and the result was positive as product did not cause blocage of the pump nor accumulation in the basin.

- Results to FG513.1 (AEROBIC BIODESINTEGRATION TEST) show that this product is not completely desintegrated after 28 days of exposure to aerobic activated sludge.

- Results to FG514.1 (ANAEROBIC BIODESINTEGRATION TEST) show that this product is not completely desintegrated after 28 days of exposure to anaerobic activated sludge.

Consequently, the answers to the set of questions for each disposal route leads to the following conclusions for product **Embossed Web Double S 55 FSC Mixed 70% - Multibonded Airlaid:**

- The product is compatible with toilets, drainlines and building pumps
  - ➔ The product does pass through the toilets and drainline. It does not disperse and it will be still in large pieces when it reaches the building pump, but it passes through the pump and does not accumulate in pump basin.

- The product is not recommended for septic systems
  - ➔ The product does not biodesintegrate sufficiently to be compatible with septic systems.

- The product is compatible with Municipal Collection and Treatment Systems, provided that product components are safe for the environment
  - ➔ Due to its high settling rate, the product will be removed in the grit chamber and will not enter further steps in municipal treatment systems. Then it will be collected as a solids disposal and will be landfilled or incinerated.
  - ➔ To be claimed as flushable, the product manufacturer must prove that product components are safe for the environment.

- The product is not suitable for situations with untreated discharge
  - ➔ As product does not disperse in water not biodesintegrate nor disintegrate sufficiently to become unrecognizable in the environment, it is not suitable for situations with untreated discharge.

Overall Flushability Assessment:

Product **Embossed Web Double S 55 FSC Mixed 70% - Multibonded Airlaid** is:

- Compatible with toilets, drainlines and building pumps
- Not recommended for septic systems
- Compatible with Municipal Collection and Treatment Systems, provided that product components are safe for the environment
- Not suitable for situations with untreated discharge

APPENDICES

The following documents are enclosed:

- One summary sheet result per test