

IWSFG Template for reviewer comments and							Document reviewed:	PAS 1	
Key explaining the type of comments Te=Technical, Ge=General, Ed=Editorial									
	Association	Initial	Starting Line Number (e.g. 17)	Ending Line Number (e.g. 23)	Clause/Subclause (e.g. 3.1)	Type of comment!	Comments	Proposed change	Observation of the secretariat
1	NP	NP	Various places throughout document			Ge	The word "specification" is not appropriate here. As specification means "a detailed description of the design and materials used to make something." These test methods should be presented as guidelines. Does IWSFG intend to provide design parameters for flushable products?	Recommend changing the "specification" to "guideline" throughout all relevant documents.	Not accepted e.g. PAS 55 was not a detailed design / materials spec yet adopted internationally
2	AF&PA	AF&PA				Ge	It is our understanding that this set of standards was intended to address nonwoven materials. All of the normative INDA/EDANA references are all for nonwovens. AF&PA believes that IWSFG should specify that this set of standards should apply to nonwoven wipes specifically so as to bring clarity to its intent.	Clarify in the Scope that this standard applies to nonwovens only.	Not accepted - clarify intent in SCOPE for material to be disposed in toilet (CF to inquire AFPA) Deleted 5.3.12 and 5.3.13 in PAS 2 reference to dry tissue paper and substrates.
3	AF&PA	AF&PA				Te	We believe that labelling should not be required, but would like to suggest clearer language in this regard.	change "Products that successfully pass the test criteria outlined in Section 6.2 should be labelled in accordance 193 with INDA/EDANA 2017..." to read "Products that successfully pass the test criteria... may be labelled. If so, labels must be in accordance with...."	Accepted
4	EDANA	ED			7	Ge	The technical requirements may be adequate as they are, we understand this by itself isn't enough to structurally mitigate the problems in the sewer system. These are caused by consumers that lack awareness of the difference between flushable and non-flushable wipes. We are committed to make a serious effort to prevent consumers from flushing non-flushable products. Realising that about 10% of all wipes sold are marketed as 'flushable' and 90% as 'non-flushable', we are convinced that aligning efforts to encourage consumers to 'bin' the 90% of the wipes that are not designed to be flushed, will have much more impact than debating the technical requirements.		Not accepted, no reference to the PAS
5	EDANA	ED				Ge	We would rather welcome the IWSFG in joining our efforts to raise consumer awareness instead of supporting a second set of flushability guidelines that are more likely to confuse stakeholders than to contribute to a measurable reduction in the number of blockages.		Not accepted, no reference to the PAS
6	INDA	INDA			Section 1	Ge	There are numerous discussions within the introduction that are broad or nebulous. The authors have written the introduction as if the reader understands all aspects of a wastewater system.	We suggest including some general references for the reader on the basics of the wastewater system. The EPA has some nice documents that could be referenced.	Not accepted
7	Lenzing	Lenzing			Section 7	Te	It is worth to mention also concerns for the biobased products such as PLA which is biodegradable in industrial compost (at temp. 50-60°C), but not biodegradable in home compost (at ambient temperature) and not biodegradable in the marine environment.	Add PLA as an example of a Biobased product in the section 7 which is not biodegradable in the marine environment.	Not accepted - already in section 7
8	PG	PG				Ge	Submitting comments on the IWSFG PAS documents in this public comment period in no way represents participation in the development process of the IWSFG PAS documents. Nor does commenting imply agreement with any content; where portions of the IWSFG documents have not been commented upon, consent with the content therein is not implied.		Not accepted, no reference to the PAS.
9	PG	PG				Ge	As the PAS documents are designed to work in concert, it is noted here that revisions to PAS-3 to reduce intra-lab and inter-lab variability are necessary prior to publication. Extensive interlaboratory studies are necessary to establish the viability, reproducibility and validity of the proposed method parameters and criteria.	Conduct an inter-laboratory round robin experiment to establish the validity of the PAS-3 method prior to publication of the IWSFG documents.	Not accepted, no reference to the PAS

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10	PG					As the PAS documents are designed to work in concert, it is noted here that the method and criteria proposed in IWSFG PAS-3 are not appropriate for the evaluation of any products, including flushable wipes. Based on the results of an interlaboratory investigation of the PAS-3 disintegration test, three of eight toilet papers tested would not meet the proposed acceptance criteria. An additional three of the five toilet papers tested would not meet the proposed acceptable criteria if the rinse step were removed. As such, it can be concluded that the rinse step alone resulted in 50% of the materials artificially meeting the criteria (i.e., false positive results). It should be noted that the toilet papers tested have been used by consumers for many years, without any evidence of flushability concerns. As such, the results call into question the ability of PAS-3 to differentiate between materials that are compatible with wastewater infrastructure, from those that are incompatible.	Conduct a set of inter-laboratory round robin experiments to establish the validity of the PAS-3 method (and/or alternative methods) prior to publication of the IWSFG documents.	Not accepted, no reference to the PAS
11	PG	PG			Ge	As the PAS documents are designed to work in concert, it is noted here that the PAS-3 disintegration test has been shown to be unreliable and unrepeatable between laboratories and thus will require significant modification and further method development before it should be considered for inclusion in an international specification.	Conduct a set of inter-laboratory round robin experiment to establish the validity of the PAS-3 method (and/or alternative methods) prior to publication of the IWSFG documents.	Not accepted, no reference to the PAS
12	PG	PG			Ge	The IWSFG PAS documents do not outline an approach for determining compatibility with wastewater infrastructure. The IWSFG documents lack any content or context regarding infrastructure issues currently experienced by wastewater utilities. Further, the IWSFG documents contain no data, examples or details regarding issues that can be attributed to flushable wipes. Therefore, the IWSFG documents provide no justification for stipulating qualities or characteristics for flushable products, and as such, represent arbitrary requirements that are unfounded and unrelated to issues faced by wastewater utilities.	Provide examples of infrastructure issues currently experienced by wastewater utilities specifically attributed to flushable wipes.	Not accepted, no reference to the PAS
13	PG	PG			Ge	The IWSFG documents do not contain sufficient documentation or information to establish why the IWSFG documents have been developed, or what results the IWSFG documents seek to achieve regarding flushable wipes beyond vague and unsupported performance concepts. The IWSFG PAS documents contain no documentation of operational issues that have been experienced by IWSFG members, or the utilities they represent, that have been caused by flushable wipes. Further, no justification for how those issues would be resolved as a result of implementation of the IWSFG PASs for flushable wipes is provided. Based on the results of field testing and forensics conducted by a range of stakeholders since 2010, all available evidence continues to reinforce that flushable wipes are compatible with wastewater infrastructure.	Provide examples of infrastructure issues currently experienced by wastewater utilities specifically attributed to flushable wipes.	Not accepted, no reference to the PAS
14	PG	PG			Ge	The IWSFG has provided no details regarding the process utilized to establish baseline performance. Outside of photographs within an Annex, no data regarding the performance of materials in the PAS-3 test has been included in the documents available for public review. Further, no references to supporting documentation, test results, or other relevant substantiation demonstrating how and why the proposed disintegration performance is required for infrastructure compatibility were provided for review. Without such documentation, the current IWSFG documents are a collection of unproven assumptions and untested hypotheses. As such, a thorough and complete review of the IWSFG PAS documents cannot be conducted without access to relevant test results/data utilized to establish benchmark performance in the IWSFG PAS tests, and importantly, why and how that specific level of performance is necessary to protect wastewater infrastructure.	Provide details of all testing done to establish all test parameters and criteria.	Not accepted

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15	PG	PG				Ge	The IWSFG PAS documents do not account for all pathways in wastewater infrastructure. Of greatest significance is the omission of test methods for either household or municipal pumps and aerobic biological degradation.	Provide the rationale for why the IWSFG documents do not provide testing to evaluate compatibility with pumps, or testing to evaluate the ability to degrade biologically under aerobic conditions.	Not accepted, no reference to the PAS. IWSFG is of opinion that an effective disintegration test overcomes need for any pump test The aerobic test was dropped because it was not representative of wastewater treatment plant systems
16	PG	PG				Ge	Misuse of the word "standard," and variations thereof, occurs in the texts. The documents assembled by the IWSFG are neither a standard, nor are they Publicly Available Specifications developed, for example, in accordance with the process set forth by the British Standards Institute (BSI). Misuse of the word "require," and variations thereof, occurs frequently throughout the texts. The IWSFG documents can in no way require action.	Clarify that the documents are guidelines.	Not accepted
17	PG	PG				Ge	There is significant overlap of content (both verbiage and technical details) between the IWSFG documents and existing copyrighted material- in particular the work of Working Group 10, within Technical Committee 224 of the International Standards Organization- and there is no reference to consent from the copyright owners with regards to this use.	Provide acknowledgement from the ISO copyright office allowing the use of ISO content. From ISO TC224/WG10/TR 25424 WD3: "All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester."	Not accepted, no reference to the PAS
18	PG	PG				Ge	The first draft of the IWSFG documents consisted of a Standard and associated Publicly Available Specification (PAS) documents, and the entire body of work was described as the IWSFG Flushability Guidelines (http://iwsfg.org/iwsfg-flushability-guidelines/). The second draft consists of three PAS documents and are referred to collectively as the Flushability Specification.	Clarify the type of document the IWSFG has developed. Provide the rationale and basis for renaming the IWSFG documents from "Guidelines" to a "Specification."	Not accepted.

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19	PG	PG			Ge	<p>The documents do not appear to have been developed per an established Publicly Available Specification process- for example, by the process set forth by the British Standards Institute (BSI). Revise all instances to utilize an appropriate term such as "Guideline" or equivalent. Alternatively, provide details of the national or international standards organization that is accrediting the documents as "Publicly Available Specifications."</p> <p>Note to Entry: The first sentence of the British Standards Institute (BSI) definition of a standard requires agreement- not among a single organization or group of common stakeholders- but among "manufacturers, sellers, buyers, customers, trade associations, users or regulators." The full definition reads (https://www.bsigroup.com/en-GB/standards/information-about-standards/what-is-a-standard/): "In essence, a standard is an agreed way of doing something. It could be about making a product, managing a process, delivering a service or supplying materials – standards can cover a huge range of activities undertaken by organizations and used by their customers. Standards are the distilled wisdom of people with expertise in their subject matter and who know the needs of the organizations they represent – people such as manufacturers, sellers, buyers, customers, trade associations, users or regulators... They are designed for voluntary use so it's up to you – you're not forced to follow a set of rules that make life harder for you, you're offered ways to do your work better. Standards are knowledge. They are powerful tools that can help drive innovation and increase productivity. They can make organizations more successful and people's everyday lives easier, safer and healthier."</p>	<p>Clarify if the IWSFG has developed the PAS documents in accordance with a standard process in accordance with a third-party certification body (ISO or BSI, as examples).</p> <p>In the interest of transparency, list the stakeholders groups and organizations that participated in the development (i.e., activities other than the public comment) of the IWSFG Standard and PAS documents.</p>	<p>The development of the PAS documents was by a group of water industry experts in response to a need to protect sewer networks, treatment systems and the natural environment.</p> <p>These documents have been subjected to public consultation</p> <p>The stakeholder groups and organizations that participated in the development of the IWSFG Standard and PAS documents are listed on the IWSFG website</p>	
20	RL	RL			TE	IWSFG-PAS 3:2018 does not contain pre-rinsing procedures that are readily available to all labs	Follow GD3 FG502 guideline for sample preparation	See PAS 3	
21	RL	RL			GE	Consumers must continue to have access to flushable wipes for personal cleansing that are both effective and protect the wastewater environment. GD3 compliant wipes are the solution to wastewater challenges, not the problem.		Not accepted	
22	RL	RL			GE	IWSFG has provided no evidence that the GD3 testing protocol and pass fail parameters are resulting in harm to wastewater infrastructure. Multiple collection studies conducted with the assistance of wastewater demonstrate that GD3 compliant wipes are not harming wastewater infrastructure	Please provide field study evidence that demonstrates harm to wastewater infrastructure from GD3 compliant wipes	Not accepted, no reference to the PAS	
23	EDANA	ED	1	282	Ge	EDANA is aware that some of its members, as well as INDA, are submitting detailed feedback. This feedback is well thought-through, of high quality and brought to you in a constructive way. It would be redundant to repeat these comments, but I definitively would like to use this letter to explicitly endorse those comments.		Not accepted, no reference to the PAS	
24	KC0	KC0	2		Ed	What does the acronym PAS stand for?		Accepted	
25	KC1	KC1	11	13	Copyright Notice	Ed	Not defined in PAS 1	Accepted	
26	KC11	KC11	11		1 Introduction	Te	24 hours is part of a range. For activated sludge processes HRT is in the range 15-40 hours. Ref Wastewater Engineering: Treatment and Reuse. Edition 4. Metcalf & Eddy, page 747.	Replace 24 hours with 15-40hours	Partially accepted - Changed wording to be typically within 24 hours
27	EDANA	ED	11	13		Ge	typ		Not accepted, no reference to PAS
28	INDA	INDA	13	13		Ge	<p>The IWSFG implies that these documents may be used for standards development. While they may most certainly be considered in a standards process, using them in and of themselves for development of a standard is presumptuous in light of lack of multi-stakeholder agreement. INDA, EDANA, and other industry representatives would be willing to be part of any standards process to discuss moving forward with a globally accepted set of test methods and pass/fail criteria (by wastewater AND industry experts).</p> <p>Suggest rewriting sentence to say: "Such purposes include use in a multi-stakeholder development of guidelines or standards." The IWSFG is well within their rights to develop guidelines as they see fit.</p>	<p>Not accepted - Copyright section only outlines permitted uses</p>	

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29	NP	NP	13	13	Copyright notice	Ge	Purpose of proposed IWSFG documents are presented as a ground to develop guidelines and standards. There should be involvement from other stakeholders like industry associations and other industry representatives along with waste water experts in order to create a multi-disciplinary approach to a guideline or a standard.	Proposing to change the sentence as: "Such purpose includes the development of guidelines and standards by multi-stakeholders such as industry associations and other experts in the subject matter."	See comment #28
30	KC2	KC2	16	17	Foreword	Ed/Ge	Does country representation from USA, Australia, Japan, Canada, New Zealand and Spain (?) truly represent a worldwide coalition?	Replace "worldwide" with "international" Add web link to IWSFG membership page to provide up to date country membership so this is transparent.	Accepted
31	GHC	GHC	16	24		Ge	A limited pool of experts have been used to develop this IWSFG PAS 1. It cannot be considered to be "global consensus". This paragraph needs to be re-written to reflect this. A lot of the work has been abstracted from the INDA / EDANA Guidelines documents and test methods		Not accepted, no reference to the PAS
32	INDA	INDA	16	24		Ge	The statement made in this paragraph is misleading. The IWSFG takes unacceptable liberties in describing who actually has developed the criteria in this draft specification. First and foremost, the criteria discussed in this draft have been collected by a relatively small group of global wastewater "experts", including only six voting members none of whom are from the UK and only one from Europe. With no line of sight to individual members participating from each country along with background and credentials, there is no validation of "expertise". Use of terms like "worldwide coalition" and "global consensus" should be struck. In addition, three of the five "critical characteristics" described in section 6.2 are pulled verbatim (with one minor alteration) from INDA and EDANA's 3 rd ed. Guidelines for Assessing Flushability of Disposable Nonwoven Products (as referenced within this draft). In addition, the test method used in PAS 3 is sourced from GD3 (with parameter and pass/fail changes). In essence, adoption of this methodology points to the fact that INDA and EDANA members (along with wastewater representatives who have been involved over the years with these guidelines) are the true "experts" in developing guidelines such as these. Use of this wording in the foreword as an attempt to convey broader acceptance than is warranted is disingenuous at best.	The proposed change is to rewrite the foreword using the following messaging: 1) The current makeup of the IWSFG members who worked on this document, including the background credentials of each and the process used to gain a "global consensus". 2) Acknowledgement that the majority of this document is due to the long-standing work of industry experts working with wastewater representatives over the years	Partially accepted - point 1 not included Point 2 accepted
33	NP	NP	16	24	Foreword	Ge	Who are the consensus members? And how are these test methods and pass/fail criteria are designed? What was the protocol that was followed to get global consensus on these documents?	Clarify the section by adding members of the consensus and basis for how the test methods and criteria for flushable product designed. Explain the protocol or program that was followed for global alignment of all wastewater services.	Not accepted - see comment #19
34	Lenzing	Lenzing	18	18	Foreword	Ge	The term "specification" is not clearly defined. In general a "specification" can also be a technical standard. However a technical standard can only be drafted by international organization for standardization.	Change "specification" to "guideline"	Not accepted - see comment #19

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35	PG	PG	20	24	Foreword	Te	Document appears to share common authorship with documents generated, and therefore the intellectual property of, the International Standards Organization (ISO) Technical Committee (TC) 224. While superficial changes have been made, language and concepts in IWSFG PAS-1 appear to have been developed from current and/or draft versions of the documents generated as part of the work of ISO TC224 WG10. From "ISO TC224/WG10/TR 24524: WD 3" (noted as: © ISO 2018 – All rights reserved): "This Technical Report addresses the hydraulic, mechanical and environmental conditions found in transport and treatment systems. The conditions listed in this report may be taken into account when designing and evaluating the performance of products which could potentially be flushed via the toilet... It is expected that this Technical Report and may provide the basis for wastewater services to delineate the qualities and characteristics of discharges to the wastewater system." In addition, note the Scope of ISO TC224/WG10/TR 24524: WD 3: "The scope of this Technical Report is to outline the broad hydraulic, mechanical and environmental conditions found globally in wastewater transport and treatment systems and their components that may be considered when defining or designing products or material intended or likely to be flushed down the toilet." (continued below)	As the work of ISO TC224 WG10 pre-dates the work of the IWSFG, where necessary and appropriate, provide proper attribution and/or reference to language and concepts drawn from the draft ISO TC224 WG10 documents. Further, in the interest of transparency, identify the affiliation of the author(s) of the IWSFG PAS documents, and state if they have been, or are currently, members of ISO TC224 WG10.	Not accepted - information has been collated from multiple sources
36	PG	PG	20	24	Foreword	Te	(continued from above) From the IWSFG PAS-1 (noted as: Copyright 2018 IWSFG): "The criteria for flushability and the appropriate test methods... reflect the hydraulic, mechanical and environmental conditions of drain lines, various onsite treatment and wastewater collection and treatment systems... Accordingly, the purpose of the flushability test along with others presented in this IWSFG series is to define the qualities and characteristics of those products that may truly be considered as being "flushable"."	As the work of ISO TC224 WG10 pre-dates the work of the IWSFG, where necessary and appropriate, provide proper attribution and/or reference to language and concepts drawn from the draft ISO TC224 WG10 documents. Further, in the interest of transparency, identify the affiliation of the author(s) of the IWSFG PAS documents, and state if they have been, or are currently, members of ISO TC224 WG10.	Not accepted - information has been collated from multiple sources
37	PG	PG	20	24	Foreword	Te	Contradicts definition of "Flushable Product" in Section 5 of PAS-2. Definition of "Flushable Product" in Section 5 of PAS-2 (with proposed minor adjustments to language for clarification) accurately and succinctly describes a flushable product, and as such, is a suitable summary of the purpose of the PAS documents. The language utilized in the Foreword mischaracterizes the PAS documents, as none of the three documents "reflect the hydraulic, mechanical and environmental conditions of drain lines, various onsite treatment and wastewater collection and treatment systems as well as the nature of the receiving waters for treatment plant effluents."	Revise Foreword to be consistent with proposed "Flushable Product" definition in Section 5 of PAS-2: "The criteria for flushability and the appropriate test methods are the product of a global consensus of the coalition members and reflect <u>test methods and criteria to ensure a product labeled as flushable</u> the hydraulic, mechanical and environmental conditions of <u>it will not impact</u> drain lines, various onsite treatment and wastewater collection and treatment systems as well as the nature of the receiving waters for treatment plant effluents." NB: A response that this comment is not relevant to the PAS would imply that the three PAS documents do not work in concert, which would contradict Lines 139-140: "The document is designed to be used in conjunction with IWSFG PAS 2: 2018 Terms and Definitions for Determination of Flushability and IWSFG PAS 3:2018 Disintegration Test Methods – Slosh Box."	Partially accepted - accepted with minor edits
38	KC3	KC3	21	23	Foreword	Ed/Ge	Per earlier comment – not truly a global consensus	Suggest amending to reflect limitations in PAS	Partially accepted - refer comment #30

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39						<p>PAS 3 does not reflect hydraulic, mechanical or environmental condition. See PAS 3 comments</p> <p>"as well as the nature of the receiving waters for treatment plant effluents." Statement is not clear and there is no discussion on the nature of receiving waters throughout PAS1,PAS2,PAS3</p> <p>The lack of a household pump test , municipal pump test or Aerobic Biotransformation Test are significant gaps in the protocol offered if it is to be considered a holistic assessment of Flushability. These should be called out as exceptions.</p>	<p>The criteria for flushability and the appropriate test methods are the product of a global consensus of among IWSFG coalition members, which are thought to approximate some of and reflect the hydraulic, mechanical and environmental conditions found in drain lines, various anaerobic onsite treatment and wastewater collection and anaerobic treatment systems. as well as the nature of the receiving waters for treatment plant effluents.</p> <p>Consideration of Aerobic Treatment, Household Pump or Municipal Pump compatibility are not included.</p>	Partially accepted - accepted with minor edits	
40	Lenzing	Lenzing	25	25	Foreword	Ge	The term "specification" is not clearly defined. In general a "specification" can also be a technical standard. However a technical standard can only be drafted by international organization for standardization.	Change "specification" to "guideline"	Not accepted
41	NP	NP	25		Foreword	Ge	In the foreword 4th paragraph, it states that "the task of the group was to prepare standards reflecting the above purpose." It does not state that this group accomplished that goal. Did they?	Please clarify.	Not accepted
42	KC4	KC4	26	28	Foreword	Ed/Ge	Broad language... "to act in a socially responsible and environmentally sustainable manner"	Provide clarification for "socially responsible"	Not accepted - words removed from the Foreword
43	KC5	KC5	26	28	Foreword	Ed/Ge	"by adhering to the established specifications" The only established specifications which are in use today are industry guidelines		Not accepted - words removed from the Foreword
44	GHC	GHC	26	28		Ge	The sentence starting "The group expects - - ." needs to be re-phrased. As written it implies that manufacturers and distributors are not socially responsible or environmentally sustainable	Remove or rephrase the statement Accepted	Accepted
45	INDA	INDA	26	28		Ge	As discussed in the Main Document from Draft 1, this language is unacceptable. Although the comment was "Not accepted" in the first draft, there was no reasoning behind the decision. In light of lack of an explanation, it needs to be brought up again.	Remove statement or reword to reflect this is an opinion of the IWSFG. Accepted	Accepted
							This statement is presumptuous. The IWSFG implies that not adhering to this standard precludes the possibility of being socially responsible or environmentally sustainable. The IWSFG has neither the expertise nor the authority to define what is meant by "socially responsible" and "environmentally sustainable". At best, this can be stated as an opinion of the IWSFG.		
46	NP	NP	26	28	Foreword	Ge	What is the authority of Wastewater services to expect the manufacturers and distributors of the products to act in a socially responsible and environmentally sustainable manner?	Please clarify.	See comment #45
47	SUO	SUO	26	28		Ge	As it is assumed that all wastewater service organizations are working for the public good. It should also be considered that manufacturers are socially responsible without providing an opinion for a new guideline which has yet to be fully vetted.	Remove this opinion statement	See comment #45
48	CB	CB	26	28	Foreword	Te	It is inappropriate to suggest that any company that chooses to not follow these voluntary guidelines is not acting in a socially responsible or sustainable manner. IWSFG has not standing to issue such judgments. A company may choose to conform to different criteria that those suggested in this document, and still be responsible and sustainable. This language is particularly problematic since every empirical study on the topic indicates that the primary problem lies with the user community improperly disposing of material never intended or labeled as flushable, ranging from baby wipes to cooking grease to clothes.	Delete lines 26 (after the first sentence) - 28.	Accepted

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49	PG	PG	27	28	Foreword	Te	Improperly implies that the opinions presented by the IWSFG in the Foreword are social and/or environmental sustainability metrics. This is unfounded, unreferenced and untrue as no such metrics exist. The opinions of the IWSFG cannot be utilized to measure social and/or environmental sustainability. Additionally, the language Implies that adherence to IWSFG PAS documents demonstrates social and/or environmental sustainability, or alternatively, that failure to adhere to the PAS indicates an entity either neither socially or environmental sustainable. Neither of these scenarios is true.	Delete. Inappropriately and improperly implies that the opinions presented by the IWSFG are social and/or environmental sustainability metrics.	Accepted
50	PG	PG	27	28	Foreword	Te	In the United States, wastewater treatment plants are permitted to continuously discharge known pollutants including but not limited to Total Suspended Solids (TSS), oxygen depleting substances [typically measured as Biological Oxygen Demand (BOD)] and nutrients (defined as pollutants in the United States Environmental Protection Agency [EPA]'s Report to Congress on the Impacts and Control of CSOs and SSOs; 2004). These pollutants can and do have a negative impact on "the nature of the receiving waters for treatment plant effluents" (IWSFG PAS-1).	Describe how the risk from the discharge of pollutants (as defined by the US EPA) in the form of TSS, BOD and nutrients by wastewater treatment plants represented by IWSFG members is deemed appropriate. In particular, describe how risk and budget, as well as receiving water quality determine the extent of treatment for a WWTP.	Not accepted, no reference to the PAS
51	PG	PG	27	28	Foreword	Te	Sentence describing wastewater services is an oversimplification. The expectations of the IWSFG are irrelevant to the document.	Delete the following sentence: "Wastewater services are organizations acting for the public good as a public service. The group expects the manufacturers and distributors of their products to act in a socially responsible and environmentally sustainable manner by adhering to the established standards." If the sentence is retained, for context, provide the IWSFG's position on "blending," specifically how the practice of blending protects the public good and represents socially and environmentally sustainable operation by wastewater services. Note to entry: "The [US Environmental Protection Agency] EPA issued guidance in the mid-2000s banning a technique used by some utilities in which some wastewater is routed around the treatment process before being blended with treated flows and then discharged into areas in the receiving waters known as mixing zones. The practice is used to keep the high volumes of wastewater, such as those during storms, from overwhelming the treatment plant. The agency said blending and the use of mixing zones violate the Clean Water Act." (continued below)	Partially accepted, section deleted
52	PG		27	28	Foreword	Te	Proposed Change continued from above	[continued from above] (from: https://www.bna.com/wastewater-practice-mostly-n57982084593/). "Opponents argue that the blending ban raises costs for wastewater utilities." (From https://www.wateronline.com/doc/epa-s-wet-weather-policies-debated-in-court-0001).	

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53	PG	PG	27	28	Foreword	Te	Document contains language significantly similar to that found in draft versions of the ISO TC224 WG10. From the IWSFG PAS-1 (noted as: Copyright 2018 IWSFG): "The group expects the manufacturers and distributors of their products to act in a socially responsible and environmentally sustainable manner by adhering to the established specifications." From "ISO TR 24524: WD 2 v1" (noted as: © ISO 2017 – All rights reserved): "It is equally hoped that manufacturers and distributors of products that would be marked flushable or which by their location and use are likely to be flushed would take these conditions into account when designing and marketing such products. Thereby demonstrating their conformity with the principles of social responsibility as set out in ISO 26000 which provides guidance on how businesses and organizations can operate in a socially responsible way. This means acting in an ethical and transparent way that contributes to the health and welfare of society."	In the interest of transparency, declare if the author(s) of the IWSFG PAS documents are members of ISO TC224 WG10. Further, declare if the author(s) have participated in the development of both documents.	See comment #19
54	Lenzing	Lenzing	28	28	Foreword	Ge	The term "specification" is not clearly defined. In general a "specification" can also be a technical standard. However a technical standard can only be drafted by international organization for standardization.	Change "specification" to "guideline"	See comment #1
55	KC6	KC6	58	60	1 Introduction	Ed/Ge	Aspirational language, would be better to stick to the role	The objective role of wastewater service providers is to protect public health and the environment. Their principal task is to safely receive, collect, transport and treat sanitary and industrial discharges from the customers of the areas they serve. In doing so they provide protection for public health and receiving environment	Partially accepted
56	DPI		60	60	1	Ge	These residents	These customers	Accepted
57	PG	PG	61	62	1	Te	Inaccurate. While various wastewater services may choose to provide advice to residential and commercial users, this sentence completely ignores industrial pretreatment programs, which through permitting "reduce conventional and toxic pollutant levels discharged by industries and other nondomestic wastewater sources into municipal sewer systems and into the environment." (https://www.epa.gov/npdes/national-pretreatment-program).	Change line 61-62 to read to include information presented in Lines 126-131: Service providers routinely provide advice to residential and commercial customers, and often have permit limits on discharges of conventional and toxic pollutants from industrial customers.	Partially accepted - with minor edits
58	DPI		62	62	1	Ge Commercial customers Commercial premises	Not accepted
59	KC7	KC7	64	66	1 Introduction	Te	Moist wipes – this is ambiguous Recent years – be specific Baby wipes are now ~40%* of influent in US, 75-90%** of sewer and pump clogs in UK and they do not get mentioned anywhere in this paragraph which is loosely teeing up the problem statement. * NYC study, 2016 ** https://www.water.org.uk/publications/reports/wipes-sewers-blockage-study	Typical waste streams include toilet paper, human waste, food waste, detergents and cleaning agents. In recent the last 20 years, there has been a growth worldwide in sales of wet wipes for surface, personal and toilet bowl cleaning which are not compatible with wastewater infrastructure new products such as moist-wipes and toilet bowl cleaning products have been introduced worldwide - many some of these wet wipe cleaning products are identified as "flushable" products.	Accepted
60	EDANA	ED	64	70		Ge	EDANA and its members take the issues faced by waste water services due to items never designed to be flushed very seriously. As commented already on the first draft, we therefore regret the sole focus of the IWSFG on further specifying how wipes intended to be flushed should be designed, rather than looking for comprehensive solutions with all stakeholders, including consumer education to address the inappropriate disposal of products through the toilet.		Not accepted, no reference to the PAS
61	DPI		67	70	1	Ge	Sentence starting with It is important -	suggest rewriting for clarity	Not accepted, no reference to the PAS

IWSFG Template for reviewer comments and							Document reviewed:	PAS 1	
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62	PG	PG	68	69	1	Te	The transport mechanism for solids in small diameter piping (i.e., drainline or plumbing) is well establishing in the literature and is referred to as a "sliding dam" where all materials in the plumbing and drainline (including toilet paper, feces and flushable wipes) form a dam at the invert of the pipe that is propelled forward by the leading edge of the wave of water behind the material. "As mentioned earlier, for many solids found in sewers, typically gross solids in combination with toilet paper, the usual mode of movement is not floating in the wave, but by contact with the invert of the pipe at all times: a sliding, leaking dam... The solid obstructs the flow down the pipe, and causes a build up of head behind it. The amount of water that flows past the solid depends on the size, shape and roughness of the flow path, and the driving head" (Butler et al; 2005; A model for the movement of large solids in small sewers; Water Science & Technology; Vol. 52; Issue 5; Pg. 69-76).	Revise to encompass and describe all sewer transport (both residential and municipal) in terms of transport of solids. Suggestion: "It is important that material that is intended to be disposed to the toilet should be compatible with not only the residential plumbing and the wastewater delivery network it should pass through, but also the wastewater delivery network , the downstream wastewater treatment system, and where it is not removed through treatment, the receiving environment."	Accepted
63	PG	PG	68	69	1	Te	Continued from above: Regarding transport distance, Butler and Davies (Butler and Davies; 2011; Urban Drainage; 3rd Edition; Spon Press; London, UK) concluded (emphasis added): "Solids which are large compared with the flush wave and pipe diameter move with a sliding dam mechanism (Littlewood and Butler, 2003). In this case, the flush wave builds up behind the solid, which acts as a dam in the base of the pipe. When the flow's hydrostatic head and momentum overcome the friction between solid and pipe wall, the solid begins to move along the pipe invert. The amount of movement that occurs depends on how 'efficient' the solid is as a dam; the higher the efficiency, the further the solid will move for the same flush wave... Photograph (a) shows toilet tissue alone in the flow and photograph (b) shows toilet tissue and an artificial faecal solid in combination. Note the pool of water forming behind the solid and propelling it along. <i>The role of toilet tissue in forming the 'dam' is noteworthy. Solids tend to move furthest in the sliding dam mode.</i> " In other words, <i>the more intact a material is in the drainline, the farther it will be transported</i> , due to the increased surface area against which the wave of water from the toilet flush can push, and is the mechanism by which they are transported in the plumbing and drainline. This simple fact, that intact material is more effectively transported in the drainline, contradicts fundamental principles of the IWSFG's PAS documents, their proposed testing and criteria.	Revise to encompass and describe all sewer transport (both residential and municipal) in terms of transport of solids. Suggestion: "It is important that material that is intended to be disposed to the toilet should be compatible with not only the residential plumbing and the wastewater delivery network it should pass through, but also the wastewater delivery network , the downstream wastewater treatment system, and where it is not removed through treatment, the receiving environment."	Accepted
64	PG	PG	68	69	1	Te	The phrase "... material that is intended to be disposed to the toilet should be compatible with not only the residential plumbing it should pass through..." incorrectly implies that transport of solids (specifically, passing through plumbing) is only relevant for residential plumbing. This function is also critical for municipal sewers- both sanitary and combined sewers function by maintaining or periodically producing a minimum velocity to prevent solids from settling, or resuspend settled solids, such that they can be transported to the WWTP for removal and/or subsequent treatment. From Section 19.14 "Flow in Gravity Sewers" in Water-Resources Engineering (4th Edition, McGraw-Hill, pg. 693): "To prevent the settlement of wastewater solids, the velocity in a sewer flowing full should be not less than about 2 ft/sec (0.6 m/sec). Such a sewer flowing one-sixth full will have a velocity of 1 ft/sec (0.3 m/sec), which is reasonably adequate. This is especially important in sanitary sewers, for decomposition of settled wastes results in undesirable conditions."	Revise to encompass and describe all sewer transport (both residential and municipal) in terms of transport of solids. Suggestion: "It is important that material that is intended to be disposed to the toilet should be compatible with not only the residential plumbing and the wastewater delivery network it should pass through, but also the wastewater delivery network , the downstream wastewater treatment system, and where it is not removed through treatment, the receiving environment."	See comment #63

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65	INDA	INDA	71	73		Te	<p>To the best of our knowledge, the IWSFG have done no studies to look directly at causes of clogging and plugging in wastewater infrastructure. In fact, the only systematic study that we are aware of to look at clogs (Water UK study 2017) points to a wide variety of issues. Many of the issues identified in the UK study are not mentioned in your draft. In addition, even when clogs were discovered it appeared difficult in all cases to assign a cause. Here is an excerpt (from the Conclusions section in the Executive Summary of the report):</p> <p><i>5) The analysis of features associated with blockage locations, for which sufficient data was provided, showed a wide variability in the reason for the blockage having formed:</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> 11 were the result of features which are integral to drain and sewer system design in the UK, such as interceptor traps, backdrops, 90° bends etc. <input type="checkbox"/> 4 were the result of other unavoidable debris entering the pipe (gravel/deposits) and a sewer defect that was in need of repair. <input type="checkbox"/> 6 were due to inappropriate disposal practice; the flushing of a dishcloth, a curtain and at 4 sites, excessive volumes of wipes. <input type="checkbox"/> 3 were at locations where, despite adequate information being returned from site, there was no obvious cause. <input type="checkbox"/> 3 of the 7 pump clogs recovered were caused by material (clothes etc.) being disposed of to the sewer system. <input type="checkbox"/> For the remaining 20 sewer blockages insufficient data was available to assess the features at the blockage locations. 	<p>In describing issues in the systems, it behooves the IWSFG to describe a holistic assessment of what, in fact, is actually happening.</p> <p>If the IWSFG wants to portray themselves as experts in wastewater, it is critical to do more than express opinions and conjecture as facts in these documents.</p>	Not accepted, no reference to the PAS
66	NP	NP	71	73	1	Te	What are the studies conducted by IWSFG to understand the causes of clogs and blockages?	Please show references.	Not accepted, no reference to the PAS
67	KC8	KC8	71	73	1 Introduction	Te/Ge	This sentence needs to be changed to make clear the problem statement for IWSFG. There are references which should be included	<p>The physically adverse effects of the introduction flushing products incompatible with wastewater systems (clogging and plugging) have already been identified but numerous other environmental effects have not been studied. The largest study of clogs carried out by Water UK in 2017 revealed that of 44 sewer clogs studied, only 2% on identifiable materials by weight were wipes labelled flushable, on the other hand baby wipes not labelled flushable were >77%. In pump clogs baby wipes were 95% of the identifiable material in pump clogs. See full report at</p>	Not accepted

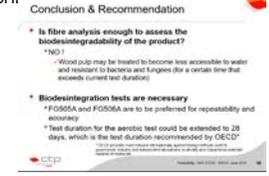
IWSFG Template for reviewer comments and							Document reviewed:	PAS 1	
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68	PG	PG	71	73	1	Te	Vague.	Define the phrase "such products" providing specific category examples of the "physically adverse effects" observed. Provide references. While the physically adverse effects of non-flushable items improperly disposed into sewer systems have been well documented (most recently in collection studies conducted IN New York City in 2016; and Water UK in London, England in 2017), no such documentation exists for flushable wipes. Provide reference to documentation that systematically identifies and quantifies the physical adverse effects of flushable wipes on sewer systems globally. If intending to imply physically adverse effects as a result of flushable wipes, provide reference to studies that demonstrate the physically adverse effects experienced by wastewater treatment systems specifically attributable to flushable wipes.	Not accepted
69	RL	RL	71	78	Pas 2018	GE	Collection studies conducted by wastewater agencies in North America and Europe have demonstrated that Baby wipes and other non flushable products are the cause of clogging waste water systems. These studies have repeatedly demonstrated that GD3 compliant wipes are not causing clogs or harm to wastewater infrastructure. Code of Practice labeling and GD3 compliant wipes are the solution to the problem waste water is facing, not the problem.	Adopt Code of Practice labeling requirements and GD3 testing protocol and criteria	Partially accepted - Code of Practice already adopted Amendments to GD3 noted in PAS 1 and PAS 3
70	CB	CB	71	72	Introduction	Te	The first half of this sentence is incorrect or, at best, very misleading. This document should reflect the evidence recently collected and reported by studies of blockages conducted on behalf of the wastewater sector. These indicate that materials that are neither intended nor labelled as "flushable" are the primary cause of blockages. Recent studies have indicated a range of causes of blockages. For example, New York City's "State of the Sewers – 2016" report stated that confirmed sewer "backups" had decreased 50% since fiscal year 2012, and of the "backups" that did occur, 71% were attributable to grease, 16% to debris (defined as accumulated sand, silt and roadbed aggregate), and 5% were due to "other causes." The only comprehensive studies of blockages that have thus far been conducted indicate that almost all of the material collected from blockages are from products not intended to be disposed of through toilets. For example, an engineering forensic study commissioned by New York City of three of its major systems found that 95%-98% of the items recovered from screens were materials not intended for flushing. [Forensic Evaluation of Non-Dispersables, New York City Law Department (2016)]. For example, in one system just three materials, trash, baby wipes and paper towels comprised 77.7% of the recovered materials, while in another those three classifications made up 79.7% of the total. A study wipes recovered from sewers conducted in the United Kingdom found that, by weight, approximately 75% of the recovered material was baby wipes, and that only a small amount (less than 1% by total weight, and less than 2% of identifiable material) was comprised of material intended to be flushed (which could include toilet paper). [Wipes in Sewage Blockage Study, Water UK (2017)].	Delete lines 71-72 and replace with the following: "The physically adverse effects (e.g., clogging and plugging) of the introduction of materials not intended or labeled for flushing or disposal into wastewater systems (e.g., baby wipes, cooking grease) has been documented, reflecting a lack of awareness by users regarding the consequences of such disposal. [N.B. Insert reference notes for the UK and NYC studies]. However, the potential environmental effects of such disposal has not been systematically studies.	Partially accepted paragraph deleted

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71						The second part of this sentence because it assumes that there are "numerous other environmental effects" while conceding that such effects have not been systematically studied. This sentence should be revised to simply reflect the fact that the potential environmental effects have not been systematically studied.		
72	INDA	INDA	73	78		Te In the context of these lines, mention of "chemicals" is outside of the scope of the IWSFG. In addition, "harmful to the environment" is a broad statement that strays into areas beyond the purview of the IWSFG. The language in this section simply needs to state that the IWSFG specification is aimed at physical compatibility with wastewater infrastructure.	For example, various flushed products may comprise materials and chemicals that can be harmful to the environment; hence, such products should not be identified as "flushable". The goal of the IWSFG is not to ban the production and/or use of these products, but to encourage manufacturers to clearly and prominently identify those products that do not meet the established IWSFG specifications as not being "flushable" and to encourage users to dispose of such products after use in a more appropriate manner.	See comment #72
73	NP	NP	73	78	1	Te Chemicals harmful to the environment is a very broad statement and is out of the scope of this document.	Remove this section.	See comment #72
74	KC9	KC9	74	78	1 Introduction	Ge While IWSFG continue to put forward disintegration tests (PAS3B, PAS3) which International Dry Toilet Papers fail to meet (see PAS3 comments) then the statement below remains disingenuous. It would appear indeed that the contrary may indeed be true. In pursuing a degree of flushability which dry toilet paper cannot reasonably meet, IWSFG risk making their operational problems much worse since consumers who no longer have the opportunity to use flushable wipes will switch to much cheaper non flushable baby wipes, which contain plastics, have extremely high tensile strength and stretch which leads pump and sewer clogs as seen in UK Water Study. https://www.water.org.uk/publications/reports/wipes-sewers-blockage-study "The goal of the IWSFG is not to ban the production and/or use of these products, but to encourage manufacturers to clearly and prominently identify those products that do not meet the established IWSFG specifications as not being "flushable" and to encourage users to dispose of such products after use in a more appropriate manner."		Not accepted, no reference to the PAS
75	PG	PG	74	74	1	Te Vague. The term "harmful" is vague and unreferenced. The term "environment" is vague and should be clarified and referenced. Is the IWSFG referencing determination of harm based on an established assessment protocol? Is this based on existing standards?	Define "harmful to the environment." Provide reference to tests the IWSFG uses for determining if materials and chemicals are harmful to the environment. In particular, provide the results of tests that the IWSFG has conducted or is referencing that establishes that flushable wipes are "harmful to the environment." As noted above, total suspended solids, oxygen depleting substances and nutrients, all defined as pollutants by the US EPA and capable of degrading quality of receiving water bodies, are continuously discharged by wastewater treatment systems globally.	See comment #72
76	Lenzing	Lenzing	77	77	1.Introduction	Ge The term "specification" is not clearly defined. In general a "specification" can also be a technical standard. However a technical standard can only be drafted by international organization for standardization.	Change "specification" to "guideline"	See comment #1

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77	NP	NP	79	87	1	Ge	As mentioned in the comments in Draft 1, general statements presented here on long term sustainability of wastewater systems with no references or rationale as to why existing flushable products are not found acceptable by wastewater. Given recent data including NYC 2016 study, Perry settlement and recent UK study, flushable wipes were not found to be contributing to blockages or increased operation costs.	Please reconcile or clarify rationale as to how this standard will improve long term sustainability.	Not accepted, no reference to the PAS
78	PG	PG	79	79	1	Te	Vague. Appears to imply a singular "flushability test," though PAS-1 Section 6.2 specifically details 4 tests.	Clarify. Replace "test" with "tests" or specifically identify the "flushability test."	Partially accepted - minor edits.
79	PG	PG	87	87	1	Te	A septic tank or similar is a form of treatment, not disposal.	Replace "disposal" with "treatment"	Accepted
80	NP	NP	88	99	1	Te	Where is this information taken? Is there a study done to identify these problems?	Please provide references.	Not accepted, no reference to the PAS
81	INDA	INDA	89	99			As in a previous comment, citation of the 2017 Water UK study is warranted here. Any other information that can be cited that details the size or nature of the problem would be beneficial. The IWSFG goes out of its way to cite literature reviews discussing plastics in the marine environment (an area well out of the expertise of its members), but fails to cite any references that support statements in areas more germane to this document.	Cite information that is pertinent to these statements.	Not accepted, no reference to the PAS
82	KC10	KC10	97	99	1	Introduction Ge/Te	If a non flushable baby wipe is flushed or put in the trash, it will end up at landfill. This sentence suggests that the flushable wipes increases the landfill burden. This is not accurate. Flushing flushable wipes is reducing the net landfill burden.		Not accepted, no reference to the PAS
83	NP	NP	100	106	1	Ge	These general statements here only talks about the flushable products being complaint with the wastewater systems. How does wastewater intend to manage product catogeries that does not have code of practice for labeling, like paper towels?	Please clarify.	Not accepted, no reference to the PAS
84	PG	PG	101	102	1	Te	Incomplete. Does not account for a material that has a mechanism to lose strength, and thereby can remain intact and not cause blockages or failure of assets. See comment below regarding "binding and clumping."	"...sewer disintegrates or has a mechanism to lose strength and does not bind or clump. "	Not accepted
85	INDA	INDA	102	104		Te	To the best of our knowledge there have been no studies which point to "disintegrates or breaks into small fragments" as a criteria for compatibility. Again, this is conjecture on the part of the IWSFG. There are a continuum of material properties in items that are flushed. Materials may disintegrate or not and still be weak, while other materials remain strong throughout system travel. In many instances of root intrusion or other imperfections in systems, even toilet paper causes clogs.	<i>For material disposed through a toilet, the IWSFG believes the key criterion is that it disintegrates or breaks into small fragments that therefore don't 'snag', 'rope' or block up screens or grills.</i>	Not accepted
86	SUO	SUO	102	104		Te	No evidence has been presented which confirms that product breaking up in very small peices is the only criteria for compatibility. For instance, all feces is not breaking up into very small pieces. Materials may disintegrate or not and still be weak, while other materials remain strong throughout system travel.	Statement should be corrected	Not accepted
87	GHC	GHC	104	106		Te	FOG is not relevant to this PAS	Remove the lines.	Not accepted
88	INDA	INDA	104	106		Te	Fats oils and grease have no bearing on discussion in this document. These materials, as you have stated, are managed elsewhere.	Remove these lines.	Not accepted
89	DPI	PV	104	106	1	Ge	Binding or clumping	suggest deleting as it appears to be not relevant	Not accepted

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90	PG	PG	104	104	1	Te	<p>The statement that fats, oils and grease cause materials to "bind or clump" is opinion, speculative, and contradicted by research in this space. Any material in the sewer may become entrained in FOG formations, including feces, sand, etc. See:</p> <p>Wallace, et. al.; International evolution of fat, oil and grease (FOG) waste management - A review; Journal of Environmental Management; 187; 2017; 424-435: "The mechanism of FOG deposit mainly involves three processes: 1) the aggregation of excess calcium compressing the double layer of FFA; 2) saponification between FFA and positive metal ions like calcium ion; 3) the previously formed deposit acts as a core attracting un-reacted FFAs and calcium ion, also debris in wastewater (based on the effects of Van der Waals attraction and electrostatic repulsion (DLVO theory) (Fig. 2)."</p> <p>He, et. al.; Evidence for Fat, Oil, and Grease (FOG) Deposit Formation Mechanisms in Sewer Lines; Environ. Sci. Technol.; 45; 2011; 4385-4391: "The preferential accumulation of fats and calcium further suggests that FOG deposits may be metallic salts of fatty acids, and chemical saponification may be responsible for their formation."</p> <p>He, et. al.; Mechanisms of Fat, Oil and Grease (FOG) deposit formation in sewer lines; Water Research; 47; 2013; 4451-4459.</p>	Delete. " Binding or clumping of material is typically caused by fats, oils and grease. "	Not accepted
91	PG	PG	104	106	1	Te	Redundant. Source control described in 61-63. Further, as shown in the comment above, FOG is a separate issue, and lines 104-106 are unrelated to the document.	Delete. " These are most predominantly associated with industrial and commercial inputs to the sewer, which are managed with 105 source control programs by water service providers. "	Not accepted
92	INDA	INDA	107	113		Te	The discussion in this paragraph is focused mainly on chemical biodegradation – which may be misinterpreted by the ill-informed reader. The key concept in the entire paragraph related to this draft is the last sentence regarding settling.	See proposed change for next comment.	Not accepted, no reference to the PAS
93	INDA	INDA	107	131		Ge	The content of these sections is, for the most part, out of context for the document in general. Since the only "critical characteristics" described in 6.2 that deals with biologic activity is anaerobic biodegradation, it would be advantageous and less confusing to focus on that in this discussion. Use of the term "biodegradability" is dangerous since it has so many definitions and is part of the FTC Green Claim language.	Rewrite 107 – 131. Focus on the biological processes that the specification focuses on. Leave out those areas, such as processing chemicals in the liquid stream, that are not covered in the scope of this document. Again, as stated previously, a footnote to a general reference is warranted.	Not accepted, no reference to the PAS
94	DPI	RM	107	117	1	Te	Biodegradation (biological treatment/treatability) is recognised as an important criteria for materials disposed to sewer (line 117). Is it the intention that flushable criteria include a component of treatability? ie what is the impact/persistence of flushable residuals residues in biosolids and treated effluent?	Some clarification on whether biodegradation is a criteria for flushables.	Not accepted, no reference to the PAS

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95	PG	PG	109	113	1	Te	Contradictory. Lines 112-113 clearly acknowledge the critical importance of settling of solids for wastewater treatment. Further, Lines 114-117 acknowledge the process whereby materials that have not been removed during primary treatment further degrade in subsequent treatment unit processes or the environment. It should be noted that all WWTPs continuously discharge suspended solids that may meet this exact description. Importantly, however, this concept is not accounted for in the description in Line 111, which is therefore incomplete as written, and as a result invalid and incorrect. All materials in wastewater are not treated in the liquid stream in the WWTP. Further the 24-hour timeframe, which appears to indicate the hydraulic retention time, is vague and lacks a reference to the actual treatment processes described, and can vary significantly based on the design of the plant. Timeframe notwithstanding, the scenarios listed do not include treatment whereby a material or chemical settles with or adsorbs to the sludge solids (as described in Lines 114-117), and as a result, can be degraded in subsequent unit processes (ex. activated sludge) where retention times can be significantly longer than 24 hours.	Revise to provide an accurate description of all mechanisms by which wastewater is treated with appropriate references. Suggested changes to align text with known WWTP unit processes: "The primary mechanisms for removal of materials are: collection <u>and biodegradation</u> in settled solids, and biodegradation in the liquid stream passing through the plant. Biodegradation in the liquid stream of the plant is important for non-sorptive chemicals. must occur within 24 hours, due to the short processing time of the predominant mechanical wastewater treatment plants. For many materials, a critical aspect is that they become part of the settled solids, hence settling is an important characteristic.	Partially accepted	
96	DPI	PV	111	113	1	Ge	predominant mechanical wastewater treatment plants	Not applicable to treatment plants in Australia as they have predominantly physical and biological processes	Not accepted - physical and biological processes are considered as part of mechanical systems	
97	NP	NP	114	115	1	Te	Biodegradation is misused here as each material will take different times to biodegrade. What material is being mentioned here? Also biodegradation is not in the scope of the tests in the documents.	Change the explanation by removing the word "biodegraded".	Not accepted	
98	DPI	PV	114	114	1	Ge to the settled solids	replace with 'by settling'	Accepted	
99	PG	PG	117	117	1	Te	Vague. The descriptor "have a high degree of biodegradability" is vague.	Suggest: "meet the Organization for Economic Cooperation and Development (OECD) criteria for biodegradability as set forth in the OECD 301 Series Guidelines for Testing of Chemicals." For details see: https://www.oecd.org/chemicalsafety/risk-assessment/1948209.pdf	Not accepted	
100	GHC	GHC	126	131		Ge	Is the note relevant to the PAS? "Criteria for recognition as a flushable product".	Remove lines	Accepted	
101	NP	NP	126	131	1	Ge	This paragraph is out of the scope of the document. Industrial waste and chemicals should not be discussed in this document. How does this affect the determination of a flushable product?	Either remove this section or clarify the connection between the flushable products.	Accepted	
102	CB	CB	131			Intro	Te	Nowhere does the Introduction discuss the issue of user or consumer awareness or communication, which every study has identified as a central challenge. Every study of blockages has demonstrated that the primary cause is the improper disposal of materials not intended or labeled as flushable, including baby wipes, clothes and cooking grease. The sole focus of the introduction on the design of products provides the incorrect impression that if only products could be properly designed and labeled, significant progress could be made. However, the evidence demonstrates that this is not the case.	Add the following new paragraph after line 131. Studies have demonstrated that the primary cause of blockages is the improper disposal of materials not intended or labeled for disposal in wastewater systems, from baby wipes to clothing to cooking grease. While not addressed in this specification, the public, including industrial and commercial entities, as well as private consumers and householders, should be aware of and avoid the disposal of inappropriate materials into wastewater systems (e.g., grease, textiles, objects, debris, toys, pharmaceuticals, packaging, etc.), or allowing for the entry of such materials into the system (e.g., by allowing debris or trash to collect near grates).	Not accepted
103	KC12	KC12	132	138	2 Purpose	Ge/Te	Since the PAS documents and methods do not cover compatibility for Aerobic Treatment, Building Ejector Pumps or Municipal Pumps this needs to be called out as an exception in the scope statement	Suggest the <u>addition of exclusion sentence</u>	Not accepted	

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104							The purpose of this Specification is to establish the criteria for the quality and characteristics of products that may be disposed via the toilet. This Specification is designed to be protective of the public infrastructure used for the removal and transport of sewage and treatment systems and where a product cannot or is unlikely to be removed during transport or treatment, it should be unlikely to cause any significant negative environmental impacts. <u>Compatibility with Aerobic Treatment process and Building Ejector Pumps is outside the scope of these documents.</u> It also outlines appropriate labelling requirements for products that meet these criteria.		
105	Lenzing	Lenzing	133	134	2. Purpose	Ge	The term "specification" is not clearly defined. In general a "specification" can also be a technical standard. However a technical standard can only be drafted by international organization for standardization.	Change "specification" to "guideline"	See comment #1
106	KC15	KC15	133	137	2 Purpose	Te/Ge	The purpose statement implies that the PAS are inclusive of all wastewater treatment but there is no Aerobic Biodegradation /Biodegradation test included. There are no public comments from the first public commenting to identify why this omission? In TC224 WG10 CTP presented a report confirming that fiber analysis alone was insufficient to assess biodegradability of a material.	Provide clear rationale for omission of an Aerobic Test, without it ISWFG are not taking into account Aerobic Treatment of fibers and changes are needed to lines 133-137 to reflect this gap.	Not accepted, no reference to the PAS
107							TAPPI method T 401 om-15 will not confirm the potential of a fiber to degrade biologically under Aerobic Conditions. Ref ISO TC 224 WG10 N 323 "Fibre analysis to detect manmade and/or synthetic fibres and relation with biodegradability", Laurence LEROY, Sylvie MOREAU-TABICHI 		
108	PG	PG	134	135	2	Te	Vague. The statement "This Specification is designed to be protective of the public infrastructure used for the removal and transport of sewage and treatment systems" is vague.	Define the term "protective" as used in the context of the Purpose of the document. Provide a reference to the standard (or similar) from which this term is derived with respect to public infrastructure.	Not accepted
109	PG	PG	134	135	2	Te	Incomplete. IWSFG PAS documents and proposed tests do not account for significant portions of residential and municipal systems including household pumps, municipal pumps, and activated sludge unit processes. As such, the proposed PAS documents and associated tests do not provide a complete framework for evaluation.	Provide the IWSFG's rationale for not including a test to evaluate the aerobic biodegradation and/or biodegradation of products.	Not accepted
110	KC16	KC16	136	137		Ed	"it should be unlikely to cause any significant negative environmental impacts."	Clarification needed	Not accepted

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111	INDA	INDA	136	137		Ge	The continued use of terms like "negative environmental impact" is unacceptable in this document. These specifications are not aimed at environmental impacts but are aimed at compatibility with wastewater infrastructure. The EPA through the CWA (Clean Water Act) continues to be responsible for determining impacts to the environment and mechanisms to avoid them. There are MANY more "environmental" events in wastewater systems from weather related issues than from clogs. (You can reference the state of NY's summary of SSO's and CSO's to see the truth in that statement - https://www.dec.ny.gov/chemical/90321.html .) The continued sensationalistic positioning of the IWSFG narrative is diluting the real effort that is necessary to reduce the burden on wastewater infrastructure.	Remove statements in these documents that reference concepts linking "environmental impacts" to these specifications.	Not accepted
112	PG	PG	136	137	2	Te	Vague. The statement "and where a product cannot or is unlikely to be removed during transport or treatment, it should be unlikely to cause any significant negative environmental impacts." is vague. Multiple terms require additional context, information and reference.	Define the phrase "significant negative environmental impacts." In particular, differentiate between significant and insignificant negative environmental impacts. Provide an example of an insignificant negative environmental impact. Provide a reference to existing standards or guidance that define "significant negative environmental impacts." Does the continuous discharge of BOD, TSS and nutrients by WWTPs cause significant negative environmental impacts? If not, how is this determined?	Not accepted
113	Lenzing	Lenzing	142	142	3. Scope	Ge	The term "specification" is not clearly defined. In general a "specification" can also be a technical standard. However a technical standard can only be drafted by international organization for standardization.	Change "specification" to "guideline"	See comment #1
114	GHC	GHC	143	143		Te	Delete the word distributor	A manufacturer - <i>may wish to identify as being flushable.</i>	Accepted
115	INDA	INDA	143	143		Te	To the best of our knowledge, distributors of retail products do not make the determination of whether or not a product is considered flushable. Retailers, brand owners, private label owners – these are groups responsible for requesting from a brand manufacturer or private label manufacturer a product that is acceptable for being marketed as "flushable".	<i>A manufacturer or distributor may wish to identify as being flushable.</i>	Accepted
116	DPI	PV	144	146	2	Ge	suggest rewriting as the intended outcome is not clear		Not accepted, no reference to the PAS
117	KC13	KC13	147	150	3 Scope	Te	Please provide evidence in the form of Round Robin Lab data to support that the test methods are suitable for assessing International Dry Toilet Papers.	Provide supporting Interlab testing data for International Dry Toilet Papers	Not accepted
118							<i>"Dry Toilet paper is out of scope of this document because it is intended to be covered by a separate paper manufacturing standard being developed by the International Standards Organization working group ISO TC6 SC2 WG27. However, in the absence of an international standard on dry toilet paper disintegration, the IWSFG suggests that dry toilet paper could be assessed against the IWSFG PAS documents."</i>		
119	KC13	KC13	147	150	3 Scope	Te	TC6 SC2 WG27 is a test method working group. TC6 SC2 WG27 will not be providing a test method with PASS/FAIL criteria which will determine compatibility of dry toilet papers with wastewater infrastructure.	Delete "Manufacturing", replace with "testing"	Accepted

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120		KC13a	147	150	3 Scope	Te	"Dry Toilet paper is out of scope of this document because it is intended to be covered by a separate paper manufacturing standard being developed by the International Standards Organization working group ISO TC6 SC2 WG27. However, in the absence of an international standard on dry toilet paper disintegration, the IWSFG suggests that dry toilet paper could be assessed against the IWSFG PAS documents."	No comment provided - comment interpreted as 'Clarify if dry toilet paper is in or out of scope.'	Accepted
121	KC14	KC14	147	150	3 Scope	Te	Round robin testing of PAS3 by KC and PG flush labs took 8 samples of commercial dry toilet papers from US, Europe and China. 2 samples each of 1ply, 2ply, 3ply and 4 ply were tested. If PAS 3 cannot yet be used for International Dry Toilet Paper then it is clearly not suitable for Flushability Assessments of all/any products.	For International dry toilet paper to be in scope, changes are required to method PAS 3. See further comments in PAS 3	See PAS 3
122									
123	AF&PA	AF&PA	147	150	3	Te	As noted in AF&PA comments on the first draft, toilet paper should be excluded from this standard all together. The ISO Committee is addressing the issue and by including this "in the absence of" language, IWSFG will cause confusion in the marketplace.	Exclude toilet papers from this standard's scope.	See comment #120
124	GHC	GHC	147	150		Te	Rephrase to clarify what the scope of this document.	Toilet paper is out of scope <i>in this document</i> .	See comment #120
125	INDA	INDA	147	150		Te	Removing toilet paper from the scope of these specifications is acceptable. However, referring to the fact that ISO is working on a "standard" and until it is done toilet paper is within scope is unacceptable. If the ISO working group felt that this specification was acceptable for toilet paper, they wouldn't be developing a new one. In addition, it is my understanding that the ISO WG is only developing a test method – development of pass/fail criteria is not in their purview.	<i>Toilet paper is out of scope in of this document. because it is intended to be covered by a separate paper manufacturing standard being developed by the International Standards Organization working group ISO TC6 SC2 WG27. However, in the absence of an international standard on toilet paper disintegration, the IWSFG suggests that toilet paper could be assessed against the IWSFG PAS documents.</i>	See comment #120
126	NP	NP	147	150	3	Te	Is toilet paper in scope or not in this document? The explanation in this paragraph is confusing.	Please clarify.	See comment #120
127	PG	PG	147	149	3	Te	Vague. Is the IWSFG involved in the ISO TC6 SC2 WG27 development process?	Provide specific details regarding how "[t]oilet paper [will be] covered by a separate paper manufacturing standard being developed by the International Standards Organization working group ISO TC6 SC2 WG27."	See comment #120
128	Lenzing	Lenzing	149	150	3. Scope	Ge	If the toilet paper is being treated in the ISO TC6 WG27, then it should be removed from the IWSFG guideline. Otherwise it makes confusion.	Remove the lines 149 - 150.	See comment #120

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129	PG	PG	149	150	3	Te	Vague. The statement "the IWSFG suggests that toilet paper could be assessed against the IWSFG PAS documents" is vague.	Provide additional information regarding the IWSFG's position on a toilet paper that is assessed against the PAS documents and does not meet the criterion of one or more of the tests. Further, given that the stated purpose of the IWSFG PASs are to "be protective of the public infrastructure used for the removal and transport of sewage and treatment systems," provide references, test results, data, or similar that establish that a toilet paper that does not meet one or more of the PAS criteria is unsafe for "the public infrastructure used for the removal and transport of sewage and treatment systems."	See comment #120
130	NP	NP	153, 252		4	Ge	Regarding the ISO / IEC standard on packaging this doesn't really address the main need on packaging which is correct communication of Do not Flush labelling. The ISO / IEC standard is essentially a very basic guide on good packaging design development and use of fewer materials, recyclable, re-usable etc. At what point was this referenced used to create these documents?	Please clarify.	Accepted

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	KC17	KC17	162	164		Ed	INDA Edition 2 was superseded by INDA Edition 3 in 2013	Old reference, strike	Not accepted
132	KC18	KC18	167	184	Section 6.1 and 6.2	Ed	Confusion between Critical Criteria and Critical Characteristics – used interchangeably and needs to be clearer for the reader. 173-177 are Characteristics not criteria. Through test methods designed to assess the characteristic they each have criteria. Use of word critical in connection with criteria is superfluous, since the 5 characteristics listed are the only characteristics it is sufficient to drop critical	Clarification needed	Accepted
133	PG	PG	167	250	Sections 6 and 7	Te	Sections 6 and 7 of PAS-1, both of which contain information regarding the criteria proposed by the IWSFG for determining if a product should be labeled flushable, are strikingly similar to the analogous sections of the INDA/EDANA Guidance Document 3. With the exception of the use of a plunger in the INDA/EDANA FG501 test, the TAPPI method for evaluating environmental and human safety (which is an incorrect application of that method, as noted below), and operational and criteria modifications to the INDA/EDANA FG502 test, the requirements are identical.	Explicitly note at the outset of Section 6 that the framework for determining if a product is flushable as outlined in IWSFG PAS-1 is derived from the INDA/EDANA Guidance Document 3. For example, replace the first sentence of Section 6.1 with: "Using the INDA/EDANA Third Edition of the Guidelines for Assessing the Flushability of Disposable Nonwoven Products as a framework, this PAS sets out 5 critical criteria that need to be addressed for a product to be deemed suitable for flushing down the toilet."	Partially accepted, with some edits
134	PG	PG	169	169	6.1	Te	Misuse of the word "standard."	PAS is not a standard. Revise to "guideline."	Partially accepted, wording modified
135	INDA	INDA	172	177		Te	Although the IWSFG has positioned this specification as protective of infrastructure, there are two very important pathways missing from the list of critical criteria. The first is pump performance – both household and municipal. Since pump clogs are considered a primary cause of problems, having a pump test is necessary. In addition, a household pump is a smaller pump and is located very close to the toilet. The second missing pathway is related to biodisintegration. The method described in this draft is only for anaerobic biodisintegration. For some reason that is not clear, moving from draft 1 to draft 2, the IWSFG removed aerobic biodisintegration from the methodology. Aerobic performance is just as critical as anaerobic.	Adopt FG503, FG505 (biodisintegration) and FG507 from the INDA/EDANA guidance document (3 rd ed.).	Not accepted, no reference to the PAS
136	NP	NP	172	177	6.1	Te	What is the reasoning of removing household pump, municipal pump and aerobic biodisintegration from the critical criteria?	Please explain.	Not accepted, no reference to the PAS
137	GHC	GHC	178	178		Te		Change "should" to "must."	Partially accepted with minor edits
138	INDA	INDA	178	179		Te	The language within this specification related to meeting critical criteria is nebulous. If the purpose of this document is to define what can and what can't be flushed – then stating that a product "should" meet the criteria implies that it's OK if it doesn't. The language within the INDA/EDANA 3 rd edition guidance document is very clear – if you don't meet the seven test methods, you cannot make a claim of flushability. The language in this document must be clarified to indicate a product MUST meet the critical characteristics to carry a flushable label. If a requirement is mandatory in the eyes of the IWSFG, it MUST pass ... if a requirement is recommended, it SHOULD pass.	Change "should" to "must."	Partially accepted with minor edits
139	RL	RL	182	184	Pas 1:2018	TE	Rockline agrees with the addition of INDA's GD3 toilet drainline test (FG501), Column settling test (FG504) and Anaerobic biodisintegration test (FG506) as they are supported and corroborated with multiple laboratory and field studies demonstrating wipes passing these and the other GD3 tests tests will not harm waste water infrastructure		Not accepted, no reference to the PAS
140	IPS	IPS	182	185	6.12	Te	Why exclude aerobic biodisintegration, municipal pump, and household pump methods. Pump protection is needed and these methods will predict this.	Add Household pump, municipal pump, and aerobic biodisintegration.	Not accepted
141	GHC	GHC	183	183		te		Change "should" to "must"	Partially accepted with minor edits

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142	INDA	INDA	183	183		Te	See line 178.	Change "should" to "must."	Partially accepted with minor edits
143	Lenzing	Lenzing	183	184	6.2. Critical criteria to be met; Table	Te	<p>Tappi/ANSI Test method T 401 om-15 is designed to test paper and pulp and not for testing different kind of fibers. In this section there is also no references for the labs which would be able to test it and have sufficient statistical assessment for the validation of this test for other fibers types.</p> <p>Lenzing as a wood-based cellulose fiber producer uses the following test to identify different fibers in the textile and nonwovens fabrics more than 40 years:</p> <p>P.-A. Koch – microscopy of fibers materials Fr. Stratmann – to detect and identify the fibers Materials Microscopy in theory and practice, part 5 – Swiss textile apparel and fashion school.</p>	<p>Replace the TAPPI/ANSI T 401 om-15 test by the following test: P.-A. Koch – microscopy of fibers materials Fr. Stratmann – to detect and identify the Fibers Materials Microscopy in theory and practice, part 5 – Swiss textile apparel and fashion school</p>	Not accepted - Uncertainty of applicability for wastewater / environmental samples
144	Lenzing	Lenzing	183	184	6.2. Critical criteria to be met; Table	Te	Why IWSFG does recommend only the anaerobic biodegradation FG506 and not aerobic biodegradation FG505? Scientifically anaerobic biodegradation is only for the break down of residual hydrocarbons from aerobic biodegradation.	Please comment and rethink scope of biodegradation for flushability.	See comment #15
145	NP	NP	183	184	6.2	Te	Are these criteria recommendations or mandatory requirements by IWSFG? And what authority does IWSFG have to mandate something?		Not accepted, no reference to the PAS
146	DPI	RM	183		6.2	Te	Biodegradation test - The referenced INDA/EDANA 2013, FG506: Anaerobic Biodegradation test is not available. It is difficult to assess the suitability of this criteria (and test) where for sewage treatment plants that do not include anaerobic digestion.	<p>Provide: INDA/EDANA 2013, FG506: Anaerobic Biodegradation test</p> <p>Ensure the test is applicable to plants without anaerobic processes.</p>	Not accepted
147	KC19	KC19	184		Table	Te	TAPPI/ANSI Test Method T 401 om-15, Fiber Analysis of Paper and Paperboard.	Please confirm any criteria for Environmental and Health Protection in this test TAPPI method	Partially accepted - removed health protection
148									
149							This is a test method for identification of fibers, it has no Environmental and Health Protection requirements or criteria		
150	KC20	KC20	184		Table	Ed	Environmental and health protection	Change to fiber type	Not accepted
151	AF&PA	AF&PA	184	187		Te	AF&PA agrees that conformity assessment and certification remain an optional "recommended but not required" element of this standard.		Noted
152	EDANA	ED	184	184		Ge	We noticed that the IWSFG has taken many of the industries comments on the first draft into account, which we appreciate. The fact that you accepted significant parts of the requirements as were defined by industry, together with the clear outcome of the Water UK "wipes in the sewer audit" strengthens us that your organisation and the industry are getting closer to a common position.		Not accepted, no reference to the PAS
153	GHC	GHC	184		Table	Te	It is unclear how the IWSFG views the TAPPI 401 fibre analysis method. Why is the TAPPI method under Environmental and Health Protection, and how is it to be used ?	Clarify position in 7.1.	See comment #150

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154	INDA	INDA	184		Table	Te	Essentially that no plunger should be required to address blockages. First the word "essentially" is not very clear. Second, since the INDA/EDANA FG501 method involves the use of simulated fecal material, care should be taken to insure the pluggage requiring a plunger is actually due to the product and not to the other materials used in the test. Language to that effect is in place in section 7.2.	<i>Toilet and Drainline Clearance Test with a modification to the acceptance criteria as noted in Section 7.2. Essentially that no plunger should be required to address blockages.</i>	Partially accepted
155	INDA	INDA	184		Table	Te	It is unclear based on the discussion in this document how the IWSFG views the TAPPI 401 fiber analysis method. Why is the TAPPI method under Environmental and Health Protection, and how is it to be used ?	Clarify position in 7.1. What is the requirement, how is the method to be used, what are the criteria ?	See comment #150
156	NP	NP	184	Table line 2	6.2	Te	What is the relationship between the TAPPI/ANSI Test method T 401 and the Environmental and health protection?	Please clarify.	See comment #150
157	SUO	SUO	184		Table	Te	Toilet and Drainline Clearance Test should be accepted as written. If exceptions are needed then an entirely new method should be written.	As outlined in INDA/EDANA 2013, FG501: Toilet and Drainline Clearance Test	Not accepted
158	PG	PG	184	184	6.2	Te	TAPPI/ANSI Test Method T 401 om-15, Fiber Analysis of Paper and Paperboard is not a test for environmental and health protection. Language in Section 7.1.1 adequately addresses environmental and human health protection.	Delete "TAPPI/ANSI Test Method T 401 om-15, Fiber Analysis of Paper and Paperboard." Replace with a reference to existing tests/frameworks for evaluating "Environmental and health protection" per Section 7.1.1.	See comment #147
159	PG	PG	184	184	6.2	Te	No "relevant acceptance criteria" is provided in TAPPI/ANSI Test Method T 401 om-15, Fiber Analysis of Paper and Paperboard. The method does not have acceptance criteria.	Delete TAPPI/ANSI Test Method T 401 om-15, Fiber Analysis of Paper and Paperboard." Replace with a reference to existing tests/frameworks for evaluating "Environmental and health protection" per 7.1.1.	See comment #158
160	CB	CB	184		6.2	Te	The TAPPI/ANSI Test Method T 401, Fiber Analysis of Paper and Paperboard, is a procedure for identifying the kinds of fiber present in a sample of paper or paperboard, with the aim of differentiating among fibers such as those from straw, flax, esparto, soft woods and various species of hardwoods. This is not a test for environmental and health protection, and contains no such criteria. Not being a test for environmental/health protection, it must be deleted from this section that claims it is such a test.	Delete reference to TAPPI/ANSI Test Method T 401	Not accepted
161	KC21	KC21	185	188	6.3	Conformity Assessment	6.3 States that there is no conformity assessment	Delete 6.3	Not accepted
162	INDA	INDA	185	188		Te	A testing laboratory can test to a "standard", a "guideline", or a "test method" provided by a customer. A testing laboratory can be certified, or accredited, as described in lines 187 and 188. However, for a testing laboratory to supply a "conformity assessment and certification" requires a formalized program to be initiated. The job of a testing lab outside of a formalized certification program is to provide data. It is up to the data requester to make the assessment. It is acceptable to recommend to a user of these specifications that they have 3 rd party test data as opposed to internal test data to affirm they meet the specification.	Conformity assessment and certification of flushable products is Testing in reference to these specifications is recommended to be undertaken by third party laboratories processes, by organizations accredited to ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories.	Accepted
163	NP	NP	185	188	6.3	Te	".... And certification of flushable products is recommended to be undertaken by third party processes....." Which organization or third party processes are available and authorized to give certification for conformity? In order for a third party to assess and certify a product, a protocol should be created and a certification program should be initialized.	Please clarify if there are authorized bodies to certify this or remove certification of flushable products by third party.	Not accepted, no reference to the PAS

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164	CB	CB	185	188	6.3	Te	It is ISO policy that ISO standards and technical reports not contain any references to or express any preference for a particular form of implementation, particularly conformity assessment through third party certification. While this may not be an ISO document, this IWSFG should honor this well-established policy and delete this section. At a minimum, it should delete any reference to ISO documents in this regard, since this section would not be allowed in any ISO standard or specification.	Delete lines 185-188.	Not accepted
165	GHC	GHC	192	194		Te	The INDA /EDANA Code of Practice for labeling does not address how a "flushable" product should be labeled.	Remove 6.4.1	Partially accepted - removed INDA/EDANA reference
166	INDA	INDA	192	194		Te	The 2 nd edition Code of Practice for labeling does not address how a "flushable" product should be labeled. The COP only makes reference to labeling of products that are determined to require a DNF (do not flush) symbol.	Remove 6.4.1	See comment #165
167	SUO	SUO	192	194		Te	The Code of Practice for labeling on pages 5 & 6 in INDA's Flushable guidance document does not address how a "flushable" product should be labeled. It only makes reference to labeling of products that are determined to require a Do Not Flush symbol.	Remove 6.4.1	See comment #165
168	RL		197	249	7	TE	IWSFG-PAS 1:2018 does not include Municipal Pump Testing. Wastewater has clearly stated flushable wipe compatibility with lift pumps is a major issue within the wastewater system. Testing impact on a municipal pump is critical to ensuring protection of a key wastewater system	Include INDA/EDANA, FG 507 Testing protocol and pass fail limits	Not accepted
169	RL	RL	197	249		TE	IWSFG-PAS 1:2018 does not include Household Pump Testing. Ensuring wipes have sufficiently low wet strength to be compatible with household pumps is critical to protecting this important piece of infrastructure	Include INDA/EDANA, FG 503 Test methods	Not accepted
170	DPI	PV	198		7.1	Ge	Title of 7.1 is different to Line 173, item 1.	To assist readers, recommend using either item 1, line 173 or item 7.1 in line 198	Partially accepted, reworded to be consistent
171	INDA	INDA	201	203		Te	This is an acceptable and necessary position to be taken by the IWSFG. The language here is very similar to the language within the INDA/EDANA 3 rd ed GD: GD3: <i>Before undertaking a Flushability Assessment, manufacturers are expected to have verified the human and environmental safety of all components of their finished products and complied with all relevant legislation and regulations in bringing a product to market. In this way, not only wastewater infrastructure is protected, but also public health and the broader Environment.</i>		Not accepted, no reference to the PAS
172	KC22	KC22	204		7.1.2 Plastics	Ed/Te	Title needs to be specific per the sub section text	Change to 7.1.2 Plastics Fibers	Accepted
173	KC23	KC23	204		7.1.2 Plastics	Ed/Te	Sub section precludes the existence of degradable plastic fibers in the future.	Change to 7.1.2 Non Degradable Plastics Fibers	See comment #172
174	KC24	KC24	204		7.1.2 Plastics	Ed/Te	If a future product contained a degradable plastic and met all criteria of PAS1 it should be able to be labelled Flushable	Provide exclusion language to clarify	Not accepted

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	Association	Initial	Starting Line Number (e.g. 17)	Ending Line Number (e.g. 23)	Clause/Subclause (e.g. 3.1)	Type of comment ¹	Comments	Proposed change	Observation of the secretariat
175	INDA	INDA	204	206		Te	<p>There are several questions and issues that arise with the section on "plastic" fibers. Although the IWSFG has done a better job defining what is meant by plastic, it continues to cite the use of the TAPPI method. There were numerous issues brought up in the first draft in reference to having NO plastic fibers and using this test method. There are no discussions or references in this text regarding the use of the method – it simply says there "should" be no plastic fibers present and references the TAPPI method which is geared more toward the identification of a variety of naturally occurring fibers.</p> <p>Several of the references cited by the IWSFG in support of this position are focused on fibers in the marine environment. The science on the effect and source of these fibers is still under investigation. Numerous credible and referenced comments were made on this subject in the first draft document – these were ignored by the IWSFG as being irrelevant.</p> <p>Clearly, the focus of the IWSFG should be to insure the fibers present in "flushable" products can biodegrade in the waste water treatment system. FG506 and, if adopted, FG505 from the 3rd ed GD, will test against this exact performance of these materials.</p>	Remove 7.1.2 Adopt FG505 and rely on performance tests to identify products that will not biodegrade in treatment systems.	Not accepted
176	PG	PG	204	210	7.1	Te	The determination of whether or not a product, material, and/or chemical is safe for the environment and human health is beyond the reach and authority of IWSFG in general and the scope of this PAS in particular. Lines 202-203 appropriately describe the requirements for manufacturers- specifically, to comply with existing legislation.	Delete lines 204-210.	Not accepted
177	Lenzing	Lenzing	205	206	7.1.2. Plastics	Te	Reference 7 does not match with the content of the lines 205-206.	Remove reference 7	Accepted
178	Lenzing	Lenzing	205	206	7.1.2. Plastics	Te	UNEP 2015 and 2016 describe the problems of plastics in the marine environment. Both references should be added to the section 7.1.2. Plastics.	Add references 11, 14 and 15 to 7.1.2. Plastics	Partially accepted (no comment #15 reference)
179	PG	PG	205	205	7.1.2	Te	Incorrect reference. Reference #7 contains no language related to plastic fibers.	Delete Reference #7 from Line 205	Accepted
180	PG	PG	205	205	7.1.2	Te	What is the position of the IWSFG regarding clothing containing plastic fibers? Can clothing containing plastic fibers be laundered in residences with washing machines that discharge to the sewer?	Delete 7.1.2. If retained, provide the IWSFG's position and/or beliefs regarding the use of plastic fibers for clothing. Further, provide the IWSFG's position and/or beliefs regarding the laundering of clothing containing plastic fibers.	Not accepted
181	PG	PG	205	206	7.1.2	Te	Vague and contradictory. The IWSFG makes no effort to differentiate between fibers from flushable wipes and other sources, such as clothing (see http://www.eunomia.co.uk/reports-tools/plastics-in-the-marine-environment/ , as an example). Further, this statement fails to provide any insight into the IWSFG's beliefs or position regarding the environmental or human safety of the discharge of plastic fibers in WWTP effluents, or the application of plastic fibers to soil along with biosolids.	Delete Section 7.1.2. If retained, provide the IWSFG's position and/or beliefs regarding plastic fibers in clothing, as well as the number of plastic fibers derived from clothing that are safe for discharge via WWTP effluents, or as soil amendment in conjunction with land-applied biosolids.	Not accepted
182	AF&PA	AF&PA	206	209	7.1.3	Te	The issue of regenerative cellulose fibers should be removed from the standard until there are clear requirements associated with those materials. Stating that there are concerns and tests are underway is not meaningful in a standard	remove clause 7.1.3	Partially accepted - move discussion to Introduction section
183	CB	CB	206		7.1.2	Te	This phrase implies that the presence of a single plastic fiber in a product would mean that it is not flushable. No doubt some "rule of reason" is intended regarding de minimis or unintentionally present levels of plastic fibers, but that is not what the text says.	Replace line 206 with: Plastic fibers should not be intentionally introduced into flushable products, or be present in more than de minimis concentrations.	Accepted

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184	INDA	INDA	207	210		Te	Removing the language from the first draft that would ultimately "ban" regenerated cellulose from wipes is correct based on the science and nature of regenerated cellulose. There were numerous comments that ultimately the IWSFG took to heart forming the basis for the second draft. This being the case, the language used in 7.1.3 is unnecessary and conveys a sense that the IWSFG are the experts in this area. Instead of using language like this, wait to see if the science paints a different picture than is known today, then make statements.	Remove 7.1.3 The language in this paragraph is misleading and implies the IWSFG knows more about this subject than they really do.	See comment #182
185	NP	NP	207	210	7.1.3	Te	This paragraph is not a statement and it shows uncertainty. It is unnecessary to have this language here until there is solid data to show that this is creating a problem.	Remove section 7.1.3	See comment #182
186	SUO	SUO	207	210		Te	Until there is evidence based in facts, there should not be unproven innuendo in a document which there is hope to become a specification	Remove 7.1.3	See comment #182
187	KF	SB	207	210	7.1.3	1	Reg. Cellulose is made of wood pulp. The cellulose obtained from wood consists of the same natural polymer found in natural cellulose (e.g. cotton). In fibres made of reg. Cellulose the cellulose adopts to the crystal structure cellulose II, which has a different orientation and benefits from their higher accessibility to water and microorganisms leading to full biodegradation, at a rate comparable or higher to cotton. Biodegradability of regenerated cellulose has been proven according to various standards in solid and liquid systems (e.g. DIN EN 13432:2000-12, ASTM 7081). The biodegradation test (7.5, FG 506) proves the biodegradability of regenerated cellulose. Cellulose is a natural molecule that is found in all plant based life in the ocean.	Regenerated cellulose to be treated as wood pulp.	See comment #182
188	KC25	KC25	208	209	7.1.3 Regenerated Cellulose Fibers	Ed/Te	"Further work is currently underway to confirm whether there is a need to restrict products that contain regenerated cellulose from toilet disposal."	Suggests that IWSFG are doing further work. Please provide references, if there are no references to support this statement then this sentence should be struck	See comment #182
189	KC26	KC26	208	209	7.1.3 Regenerated Cellulose Fibers	Ed/Te	There are strong concerns about the impact of regenerated cellulose in the environment. [11], [12], [13], [14]. This statement is wholly contradicted by reference [14] : Reference [14] states "Cellulose may not be an environmental issue in itself, but associated dyes or additives could be potentially harmful for the studied macroinvertebrates population." Ref [14] goes on to state "Terrestrial and marine invertebrates are potentially capable of digesting and degrading cellulose,45-47 consequently accelerating a coloring agent leaking in the invertebrates' digestive tracts and inducing a higher contamination." Ref [14] is unable to qualify the risk of dyes to marine invertebrates. "Indeed, while Direct Blue 22 is not considered harmful for humans, Direct Red 28 is classified as a carcinogenic, mutagenic, or toxic to reproduction coloring agent (Sustainable Production and Consumption (SUSPROC), 2006).42 Its negative effect on marine invertebrates remains uncertain but is clearly proven in the case of mammals and fishes."	This statement is wholly contradicted by reference [14] . While this topic is an important emerging area of research focused on fibers from laundry in which the regenerated cellulose fibers are treated with finished and dyes, there is no connection to date in respect of regenerated cellulose fibers and flushed wipes. Until such time, IWSFG should remove this section or re draft to reflect more accurately the state of the science in connection with regenerated cellulose used on flushable wipes.	Not Accepted - The report does not differentiate between different types of fibres and this does not preclude rayon or other synthetic cellulosic fibres. It does suggest fibres are a significant source and should be studied further.
190	Lenzing	Lenzing	208	209	7.1.3. Regenerated Cellulose	Te	What are the strong concerns and negative impacts of regenerated cellulose on the environment?	Define it clearly and add quantitative and qualitative evidences to illustrate those concerns and impacts on the environment.	Not accepted

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191	Lenzing	Lenzing	208	209	7.1.3. Regenerated Cellulose	Te	There are not existing evidences for strong concern of regenerated cellulose and it's impact on the environment.	Change to: There are different opinions and acceptance regarding the existing international standards for biodegradability tests. The following references support the biodegradability of regenerated cellulose in the environment (references 16 & 18) <u>Reference 16</u> : Park, C. H.; Kang Y. K.; Im S. S.; „Biodegradability of cellulose fabrics“, J. Appl. Polym. Sci. 2004, Vol. 94, 248-253. <u>Reference 18</u> : Vincotte biodegradability certificates for Lenzing™ fibers	Not accepted. Technical Guidance Document on Risk Assessment in support of Commission Directive 93/67/EEC on Risk Assessment for new notified substances EUR 20418 EN/2 Section 4.2.3.1 states: "In particular the stable pH of about 8 and the generally lower temperature of in average 9°C (282 K) should be considered." Reference 18 uses a temperature of 30C. Reference 16 does not apply to water environments.
192	Lenzing	Lenzing	208	209	7.1.3. Regenerated Cellulose	Te	Reference 11 is old version of the UNEP report (2015). The new report of UNEP published in 2016 identified the synthetic polymers made from fossil fuels as a source of microplastics and not viscose/rayon. Conclusion: Viscose/rayon is not identified as a source of microplastics in the UNEP report 2016 (Attachment 1; Executive Summary). UNEP report 2016 cites the literature Shen et. al. 2010 which shows Life Cycle Analysis studies on viscose, lyocell fibers and cotton (Attachment 1, chapter 8, the role of LCA assessment p. 126 and p. 250). This reference mentions higher impact of cotton (natural fibers) on the environment compared to those of viscose and lyocell fibers. This was on the basis of ecotoxicity, eutrophication, water use and land use of cotton.	Add the following new paragraph after line 131. Studies have demonstrated that the primary cause of blockages is the improper disposal of materials not intended or labeled for disposal in wastewater systems, from baby wipes to clothing to cooking grease. While not addressed in this specification, the public, including industrial and commercial entities, as well as private consumers and householders, should be aware of and avoid the disposal of inappropriate materials into wastewater systems (e.g., grease, textiles, objects, debris, toys, pharmaceuticals, packaging, etc.), or allowing for the entry of such materials into the system (e.g., by allowing debris or trash to collect near grates).	Not Accepted. These are two different reports written by two separate groups. In the 2016 UNEP report in the section on Biodegradable' plastics it states: "Some plastics have been designed to be more susceptible to degradation, depending on the environmental conditions to which they are subject. These can range from inside the human body to inside an industrial composter. Such conditions do not exist in the marine environment, and the fate of such materials in the ocean remains unclear."
193	Lenzing	Lenzing	208	209	7.1.3. Regenerated Cellulose	Te	References 11&12 are the same.	Remove reference 12. Add reference 11 to the plastics 7.1.2	Accepted
194	Lenzing	Lenzing	208	209	7.1.3. Regenerated Cellulose	Te	Reference 13 does not support the statement in lines 208-209. Several issues were identified with this reference. These are summarised in the Lenzing's note in the attachments.	Remove reference 13. Add additional references 16, 17 & 18.	Not accepted
195	PG	PG	208	209	7.1.3	Te	References contradict text. None of the references cited (References #11, #12, #13, or #14) contain language explicitly stating, or even otherwise indicating, concerns of any kind regarding environmental impact of regenerated cellulose fibers.	Delete Section 7.1.3. If retained, provide the exact language from each of the References (#11, #12, #13, and #14) that supports the statement that there exists in the literature "strong concerns about the impact of regenerated cellulose in the environment."	See comment #182

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196	PG	PG	208	209	7.1.3	Te	References #11 and #12 appear to be identical.	Make single Reference. If different, cite the specification information referenced, as well as the page number from on which the relevant information is located.	Accepted
197	PG	PG	208	209	7.1.3	Te	<p>Incorrect references. From Page 15 of References #11 and #12; Biodegradable Plastics and Marine Litter. Misconceptions, Concerns and Impacts on Marine Environments from the United Nations Environment Programme (UNEP) in 2015, rayon is defined as Biodegradation "in terrestrial environment (including medical applications)" and "aquatic/marine environment."</p> <p>Further, on Page 22, "Plastics made from the same initial polymer can show differences in material properties and rates of biodegradation. For example, a study of cellulose based fabrics demonstrated that biodegradation was greatest in rayon and decreased in the order rayon > cotton >> acetate (Park et al 2004). The tests used were soil burial, activated sewage sludge and enzyme hydrolysis. Biodegradability was related to the crystallinity of the fibres (rayon had lowest crystallinity) and the fabric weave."</p>	Delete Reference #11 and #12 from Line 208. References #11 and #12 contain information specifically identifying rayon as biodegradable in terrestrial and aquatic/marine environments, thereby contradicting the content of PAS-1. If References #11 and #12 are retained, provide the exact language from each of the References that supports the statement that there exists in the literature "strong concerns about the impact of regenerated cellulose in the environment."	See comment #182
198	PG	PG	208	208	7.1.3	Te	<p>Reference incorrectly included- conclusions in Reference #13 conflict with content of 7.1.3. Specifically, the journal article by Remy et. al., When Microplastic is Not Plastic: The Ingestion of Artificial Cellulose Fibres by Macrofauna Living in Seagrass Macrophytodebris, does not support the conclusions that there exist "strong concerns about the impact of regenerated cellulose in the environment."</p> <p>The authors concluded the following (conclusions shown in quotes, with summary text appended below in bold):</p> <ol style="list-style-type: none"> 1. "Even though 27% of sampled organisms contained 1 or more artificial fibers, the average amount of artificial fibers in each individual digestive tract was small (1.38 fiber) which is relatively low and could therefore indicate the small retention time of these fibers in the guts of the sampled invertebrates." <ol style="list-style-type: none"> a. Therefore, it can be concluded that the fibers are quickly evacuated through the normal digestion processes of the invertebrates. 2. "The observed viscose fibers thus do not seem to be transmitted from lower to higher trophic levels via predation." <ol style="list-style-type: none"> a. Therefore, it can be concluded that the viscose fibers are not transmitted from lower to higher trophic levels, and are therefore not bioaccumulative. <p>(continued below)</p>	Delete Reference #13 from Line 208. Reference #13 contains information that demonstrates a lack of both impacts and concerns regarding regenerated cellulose in the environment. If Reference #13 is retained, provide the exact language from the Reference that supports the statement that there exists in the literature "strong concerns about the impact of regenerated cellulose in the environment."	See comment #182

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199	PG	PG	208	208	7.1.3	Te	<p>(continued from above)</p> <p>3. "One of the main possible explanations could be related to the lower retention time of the nonplastic observed fibers here in the gut. Indeed, cellulose, even of artificial origin like viscose, is more digestible and degradable than plastic. Some marine invertebrates are known to be able to digest cellulose, and this could explain both the faster digestive transit of the fibers and the absence of accumulation. The small average amount of AFs found in the invertebrates' gut contents also seems to favor this nonaccumulation or transmission."</p> <p>a. Therefore, it can be concluded that the viscose fibers are digestible and degradable. This further supports the conclusions regarding nonaccumulation or transmission of the fibers.</p> <p>4. "In addition, viscose fibers are known to degrade more rapidly (100% in 8 weeks) than cotton fibers, both by sunlight or in soil when buried."</p> <p>a. Therefore, it can be concluded that the viscose fibers have been shown to biodegrade under a range of tests and conditions.</p> <p>Further, Park et. al., (reference #53 within the Remy article) concluded the following: "Rayon fibers, which have a low crystallinity and a low degree of orientation, showed the highest biodegradability in most cases."</p> <p>The abstract full reads as follows, confirming the degradability of viscose with respect to natural materials such as cotton: "Biodegradability of cellulose fabrics was evaluated by use of a soil burial test, an activated sewage sludge test, and an enzyme hydrolysis. Surface changes after biodegradation were observed by optical microscopy. From X-ray diffraction analysis (XRD), changes in the crystallinities and the internal structures as a result of degradation were also investigated. It was shown that biodegradability decreased in the following order: rayon > cotton > acetate. Rayon fibers which have a</p>	Delete Reference #13 from Line 208. Reference #13 contains information that demonstrates a lack of both impacts and concerns regarding regenerated cellulose in the environment. If Reference #13 is retained, provide the exact language from the Reference that supports the statement that there exists in the literature "strong concerns about the impact of regenerated cellulose in the environment."	See comment #182
200	CB	CB	208		7.1.3	Te	<p>It is accurate to state that there are "strong concerns" about the impact of regenerated cellulose in the environment. However, it is equally accurate to state that there are strong beliefs that these fibers do not pose a threat. This sentence should be re-phrased to accurately reflect that there is a strong debate on this issue, and avoid the misleading implication that the views are all on one side.</p>	revise line 208 to read as follows: "There is a debate about the impact of regenerated cellulose in the environment, with some expressing concern about potential impacts on the environment and studies reporting that cellulosic fibres are biodegradable in terrestrial and marine/aquatic environments."	See comment #182
201	Lenzing	Lenzing	209	209	7.1.3. Regenerated Cellulose	Te	Reference 14 describes the problems with plastics and not rayon.	Remove reference 14 and add it to the 7.1.2 Plastics.	See comment #182
202	Lenzing	Lenzing	209	210	7.1.3. Regenerated Cellulose	Te	Which work is currently underway?	Disclose the study works and involve technical experts in the NW industries and Lenzing.	See comment #182
203	PG	PG	209	209	7.1.3	Te	Reference #14 contains no information regarding either the presence or impact of regenerate cellulose on the environment. Further, the authors write (emphasis added): "Of the anthropogenic debris identified (> 500 µm) in samples from California, the majority were fibers from textiles. Because we did not have the ability to use FTIR or Raman Spectroscopy to confirm the material type, we cannot be sure if the fibers are made from synthetic material (i.e. plastic) or natural fibers such as cotton."	Delete Reference #14 from Line 209. Reference #14 contains no information regarding regenerated cellulose. If Reference #14 is retained, provide the exact language the Reference that supports the statement that there exists in the literature "strong concerns about the impact of regenerated cellulose in the environment."	See comment #182

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204	KC27	KC27	211	213	7.2	Ed	212-213 needs changing to reflect that IWSFG uses the test method of FG501 but not the same criteria.	Products should pass the toilet and drain line clearance test set out in INDA/EDANA 2013, FG501: Toilet and Drainline Clearance Test. Change to Products should be tested using the toilet and drain line clearance test method set out in INDA/EDANA 2013, FG501: Toilet and Drainline Clearance Test.	Accepted
205	PG	PG	216	220	7.2	Te	Justification provided is unfounded and unrealistic. The sentence "...the IWSFG does not believe it acceptable that any product flushed down the toilet should require a plunger to remove it if appropriately used and the product is suitable for toilet disposal." incorrectly implies that all toilet blockages requiring the use of a plunger are caused by items not suitable for toilet disposal. This is illogical, as it is widely known that feces alone, or feces in combination with toilet paper, can result in a toilet blockage requiring the use of a plunger. As such, this would imply that in such a scenario, the feces and/or toilet paper were not "appropriately used," which implies there is an "appropriate use" for either.	Delete 218-220. If retained, revise to: "No more than 5% of toilet flushes containing product should be associated with clogs that require use of a plunger to clear 216 product and excess water from the bowl and trap. Note: this test criteria differs from the requirements in INDA/EDANA FG501 because the IWSFG does not believe it acceptable that any product flushed down the toilet should require a plunger to remove it if 219 appropriately used and the product is suitable for toilet disposal."	Not accepted
206	KC29	KC29	216	217		Te	No toilet flush containing product should be associated with clogs that require use of a plunger to clear product and excess water from the bowl and trap	Practically it is very difficult in experimental work of this nature to guarantee 'zeros'. The use of a plunger is very rare in this method but from time to time can happen, when they do they are investigated and are usually the result of incorrect test equipment set up / reset. Consider wording change to provide flexibility "No toilet flush containing product should be associated with clogs that can be assigned to the product usage which require use of a plunger to clear product and excess water from the bowl and trap"	Not accepted
207	DPI		218		7.2	Ge	believe it	Check grammar	Partially accepted with edits
208	RL	RL	219	300	7.2	TE	IWSFG-PAS 3:2018 describes procedures for slosh angle calibration that are not feasible. Calibration implies adjustment is readily possible, but there is no readily available means to effectively adjust according to the procedures listed.	Follow Standardized GD3 procedures for calibration	Not accepted
209	RL	RL	219	300		TE	IWSFG-PAS 3:2018 Slosh Box testing parameters (4L, 30 min, 16 RPM) and pass-fail criteria lack the scientific basis to prove its conditions are required to protect wastewater systems. Based on the results of field testing and forensics conducted by a range of stakeholders, all available evidence continues to reinforce the fact that flushable wipes tested according to current GD3 Slosh box testing are compatible with wastewater infrastructure.	Follow Standardized GD3 testing parameters. Please provide evidence that materials passing FG 502 and all other GD 3 tests are causing harm to waste water systems	Not accepted
210	RL	RL	219	300		TE	Previous versions of the slosh box protocol from IWSFG specified a 13 rpm sloshing rate and much smaller sieve hole size. No explanation has been provided as to why the rate was increased to 16 rpm or the sieve hole size was increased to 25 mm	Please provide laboratory and field study evidence supporting the new sloshbox criteria are required to protect the wastewater infrastructure	Not accepted
211	RL		219	300			Many articles that Wastewater has cited don't cause harm to wastewater infrastructure, including premium toilet paper, and paper towels will not pass the slosh box test proposed by IWSFG	Follow Standardized GD3 testing parameters.	Not accepted
212	RL	RL	219	300		TE	IWSFG-PAS3:2018 does not provide corroborating field study evidence demonstrating impact on wastewater infrastructure. The GD3 FG502 sloshbox test is supported with significant evidence from field studies that show compliant wipes will not harm wastewater infrastructure	Provide field study evidence demonstrating requirements for adopting IWSFG sloshbox protocol. Follow Standardized GD3 testing parameters.	Not accepted
213	RL	RI	219	300		TE	IWSFG-PAS 3:2018 Slosh Box Sieve contains several dead areas around the outside of the sieve which increase variability and reduce accuracy/reproducibility depending on the method of transfer between the slosh box and the sieve.	Follow Standardized GD3 testing parameters and pass-fail criteria.	Not accepted

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214	AFGC		221	222	7.2	Te	"Consistently decrease" requires definition. If the initial flush has the centre of mass travel say 5m down the drain line, the second flush 4.5m, the third flush 4.9m, fourth 4.8m and fifth 4.7m, does this meet the 'consistently decrease' criterion where each subsequent flush has travelled less than the initial flush but there was an increase in distance between flush two and three?		Not accepted, no reference to the PAS
215	KC28	KC28	224	226	7.3	Ed	Method is singular, delete s	Change to "IWSFG 2018: PAS 3 Disintegration Test Method – Sloss Box."	Accepted
216	Lenzing	Lenzing	228	231	7.3. Criterion Disintegration	Te	Why 25 mm sieve and 30 minutes?	Please explain and disclose technical data to support 25 mm sieve and 30 minutes test duration.	Not accepted
217	PG	PG	230	231	7.3	Te	Photographic requirements are unnecessary and redundant. Photograph(s) of sieve are not a replacement for the gravimetric result, so they are of no inherent value. For example, if a product were to meet the criteria, with 95.1% passing the sieve (i.e., 4.9% remaining on the sieve), the photograph would neither confirm nor refute that result. As such, it is useless. Further, this implies that someone could visually determine the accuracy of the gravimetric result through visual observation, which is categorically incorrect, unfounded, and not scientifically proven or valid.	Delete last sentence of Section 7.3.	Not accepted
218	KC30	KC30	233		7.4	Ed	Test does not use the same criteria as FG504, thus line 233 should be changed	Change to "Products should pass be tested using the settling test method INDA/EDANA 2013, FG 504: Settling Test"	Accepted
219	GHC	GHC	234	242		Te	The text in the 2 nd draft is different from the language used in FG504 from the INDA/EDANA 3 rd ed Guidance document.	Change the language in 7.4 to reflect the test method INDA /EDANA 2013 FG504	Accepted
220	INDA	INDA	234	242		Te	The language in your 2 nd draft is different from the language used in FG504 from the INDA/EDANA 3 rd ed GD. FG504 states: <i>The average settling velocity for the articles that settle must exceed 0.1 cm/sec and at least 95% of the total articles tested must settle.</i> <i>At least 95% of the articles tested must not become sufficiently buoyant to rise more than 30 cm from the bottom of the column within 24 hours.</i>	Change the language in 7.4 to reflect the test method you are citing.	Accepted
221	SUO	SUO	234	242		Te	The language in your 2 nd draft is different from the language used in test method FG504 from the INDA/EDANA 3 rd ed guidance document	Change the language in 7.4 to reflect the test method you are citing.	Accepted
222	IPS	IPS	236	236	7.4	Te	Why distance of 1200mm instead of 1150mm, to keep consistent with INDA Method.	Change to 1150mm.	Accepted
223	IPS	IPS	240	240	7.4	Te	This should read that the wipe should raise from the bottom of the column and not the stop mark.	Change text.	Accepted
224	RL		242	249	7.5	TE	IWSFG-PAS 1:2018 does not include Aerobic Biodisintegration testing as a criteria which is a critical function within Wastewater systems.	Include INDA/EDANA, FG 505 Testing	Not accepted
225	KC31	KC31	243	245	7.5	Ed/Te	Aerobic Biodisintegration is omitted.		Not accepted, no reference to the PAS
226	Lenzing	Lenzing	243	245	7.5. Criterion Biodisintegration	Te	Why only FG506 and not FG505?	Please explain.	See comment #15
227	KC32	KC32	246	250	7.5.2	Ed	FG 506 uses a 2 minute rinse not a 1 minute rinse and a 1 mm wire mesh sieve	Update text to reflect that this is a modified version of FG506	Accepted
228	Lenzing	Lenzing	247	247	7.5.2. Anaerobic biodisintegration	Te	1 minute rinse generates difficulties. Sludge cannot be easily removed from the solid part and it leads to incorrect test results.	Change to 2 minutes rinse.	Accepted

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229	PG	PG	249	259	7.5.2	Te	Text incorrectly implied that INDA/EDANA method FG506 requires a photograph. No photograph is required in FG506. Further, photographic requirements are unnecessary and redundant. Photograph(s) of sieve are not a replacement for the gravimetric result, so they are of no inherent value. For example, if a product were to meet the criteria, with 95.1% passing the sieve (i.e., 4.9% remaining on the sieve), the photograph would neither confirm nor refute that result. As such, it is useless. Further, this implies that someone could visually determine the accuracy of the gravimetric result through visual observation, which is categorically incorrect, unfounded, and not scientifically proven or valid.	Delete last sentence of Section 7.5.2	Accepted
230	RL		258		7	TE	IWSFG-PAS 1:2018 Restriction of fibers-- A wipes compatibility with the environment should be based on its ability to biodisintegrate in the aerobic and anaerobic conditions found in the waste water environment.	Adopt the aerobic and anaerobic biodisintegration tests specified in GD3	Not accepted
231	RL	RL	258	265		TE			Not accepted, no reference to the PAS
232	KC33	KC33	262	264	Bibliography	Ed	Old guidelines, superseded by reference [6] in 2013	Strike reference [7]	Not accepted
233	Lenzing	Lenzing	273	282	Bibliography	Te	References	Remove references 12 and 13 based on the arguments mentioned in point 7.1.3. lines 208-209.	Not accepted
234	Lenzing	Lenzing	283	283	Bibliography	Te	References	Add reference 15: UNEP (2016). Marine plastic debris and microplastics – Global lessons and research to inspire action and guide policy change. United Nations Environment Programme, Nairobi.	Accepted
235	Lenzing	Lenzing	284	284	Bibliography	Te	References	Add reference 16: Park, C. H.; Kang Y. K.; Im S. S.; „Biodegradability of cellulose fabrics“, J. Appl. Polym. Sci. 2004, Vol. 94, 248-253.	Not Accepted. It does not deal with biodegradation in the water/marine environment.
236	Lenzing	Lenzing	285	285	Bibliography	Te	References	Add reference 17: I.R.Comnea-Stancu, K.Wieland, G. Ramer, A. Schwaighofer and B. Lendl On the identification of rayon/viscose as a major fraction of microplastics in the marine environment: discrimination between natural and man-made cellulosic fibers by Fourier Transform Infrared Spectroscopy – Applied Spectroscopy published in 2016. “On the Identification of Rayon/Viscose as a Major Fraction of Microplastics in the Marine Environment: Discrimination between Natural and Manmade Cellulosic Fibers Using Fourier Transform Infrared Spectroscopy”	Not Accepted. The reference states: "However, also in this case it remains to be investigated how a partial degradation and weathering of the fibers of different classes in the environment affects correct classification." The identification was not done on samples found in the marine environment and so it is not sure if it would apply or work.
237	Lenzing	Lenzing	286	286	Bibliography	Te	References	Add reference 18: Vincotte certificates for biodegradability of Lenzing™ fibers.	Not accepted. The testing does not reflect conditions in the marine environment.
238	JCFA	JP01(JCFA)	Second Draft of IWSFG Flushability Criteria : 2018 Criteria for recognition as a flushable product		7.1.3	Ge	agree to proposed amendment		Noted