

**IWSFG Template for reviewer comments and
IWSFG secretariat observation**

Document reviewed: **PAS 2**

Due date:2017//
1 Te=Technical, Ge=General, Ed=Editorial

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
PG	20	24	Foreword	Te	<p>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.</p> <p>From "ISO 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."</p> <p>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"."</p>	<p>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.</p>	

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PG	20	24	Foreword	Te	Contradicts definition of "Flushable Product" in Section 5. Definition of "Flushable Product" in Section 5 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 "Flushable Product" definition in Section 5: "The criteria for flushability and the appropriate test methods are the product of a global consensus of the coalition members and reflect test methods and criteria to ensure a product labeled as flushable the hydraulic, mechanical and environmental conditions of it will not impact drain lines, various onsite treatment and wastewater collection and treatment systems as well as the nature of the receiving waters for treatment plant effluents."	
PG	27	27	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.	

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PG	25	27	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.	

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PG	25	27	Foreword	Te	Sentence describing wastewater services is an oversimplification. The expectations of the IWSFG are irrelevant to the document.	<p>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.”</p> <p>If the sentences are 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.</p> <p>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)</p>	

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	27	27	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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PG	27	27	Foreword	Te	<p>Document contains language significantly similar to that found in draft versions of the ISO TC224 WG10.</p> <p>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."</p> <p>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."</p>	<p>In the interest of transparency, declare if the author(s) of the IWSFG PAS documents are members of ISO TC224 WG10.</p> <p>Further, declare if the author(s) have participated in the development of both documents.</p>	

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PG	100	101	4	Te	Numerous preeminent reference materials exist globally for the design and construction, as well as the operation and maintenance of wastewater conveyance and treatment systems. Definitions for any and all aspects of wastewater conveyance and treatment should be drawn from such references. Examples include, but are not limited to: Metcalf and Eddy, Wastewater Engineering: Treatment and Resource Recovery, McGraw-Hill: New York; Grady, C.P.L., Daigger G.T., Love N.G., Filipe C. D. M. Biological Wastewater Treatment, IWA Publishing, CRC Press; Linsley, et. al., Water-Resources Engineering, McGraw-Hill.	Replace definitions where noted with definitions from proper reference materials. Add references to Section 4 and Bibliography.	

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PG	102	103	4	Te	Numerous organizations have developed flushability testing and guidelines. These should, at a minimum, be included as Informative references. Examples include: UK Water Industry, Specification for a Testing Methodology to Determine Whether a Product is Suitable for Disposal Through a Drain or Sewer System, WIS 4-02-06, November 2017: Issue 1; INDA/EDANA 2013, Guidelines for Assessing the Flushability of Disposable Nonwoven Products: a process for assessing the compatibility of disposable non-woven products with Plumbing and Wastewater Infrastructure, 3rd Edition; ISO TR 24524: WD 3, ISO TC 224/ WG 10, Activities relating to drinking water and wastewater services — Technical Report on the hydraulic, mechanical and environmental conditions generally found in wastewater transport systems from toilets through to wastewater treatment plants, and the related context.	Definitions should be drawn from existing sources. Add reference to existing guidelines to Informative References. In particular, add the work of ISO TC224/WG10 given the significant overlap of concepts, content and approach with the IWSFG documents.	
PG	79	80	1	Te	Per the Introduction: "[s]tandardization requires the establishing of a language common to the various stakeholders in order to promote policy understanding and conformity." What stakeholder groups were involved in the development of the IWSFG PAS documents?	Provide a list of stakeholder groups that participated in the development of the IWSFG PAS document (not including comments received during the public comment period).	

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PG	108	112	5.1.2	Te	Vague. Unreferenced. Inconsistent. Mixes the concept of plumbing and associated fixtures within a building, and the piping that carries wastewater from a building (or buildings) to on-site treatment or municipal conveyance. See 5.1.5 below, where the piping associated with a toilet are not defined as a "drain line" but rather "flush pipes." Similarly, see 5.1.7 below, where the piping associated with conveyance of wastewater from a building are not defined as a "drain line" but rather "connecting pipes."	Revise definition. Check for internal consistency of terms utilized within and among definitions. Cite standard reference material as source.	
PG	114	115	5.1.3	Te	Vague. Unreferenced. Utilize a definition of infrastructure tied specifically to wastewater conveyance and treatment.	Revise definition. Cite standard reference material as source.	
PG	120	121	5.1.4	Te	Unreferenced.	Revise definition. Cite standard reference material as source.	
PG	133	135	5.1.6	Te	Unreferenced. Further, it is unclear how the collection of stormwater that is discharged to the environment is relevant.	Revise definition. Cite standard reference material as source.	
PG	136	137	5.1.6	Te	Vague. Would feces (sanitary waste in an undiluted form) be considered wastewater per this definition? Further, does the definition include sanitary wastes in a diluted form?	Clarify. Revise definition. Cite standard reference material as source.	
PG	139	139	5.1.7	Te	Unreferenced.	Revise definition. Cite standard reference material as source.	

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PG	149	182	5.2	Te	Incomplete. Content of Section 5.2 does not match header. First, the list of definitions does not include any mechanical conditions within Wastewater Collection and Treatment Systems. Second, the list of definitions includes one hydraulic condition (Reynolds Number), which is one aspect of wastewater conveyance and treatment and insufficient to describe the hydraulic conditions in sewers and wastewater treatment plants.	Delete "mechanical and environmental" from header. If retained, add definitions that are relevant for an accurate and complete description of the hydraulic (example: diurnal flow), mechanical (example: municipal pump) and environmental conditions (example: biological oxygen demand) of wastewater collection and treatment systems.	
PG	149	182	5.2	Te	Incomplete. Lacks definition of "reticulated" with respect to sewerage.	Add definition of "reticulated" in the context of sewerage. Cite standard reference as source.	
PG	152	153	5.2.1	Te	Incomplete. Entire definition not included from source.	Replace with full definition: "Biodegradation is the process by which organic substances are decomposed by micro-organisms (mainly aerobic bacteria) into simpler substances such as carbon dioxide, water and ammonia."	

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PG	164	171	5.2.3	Te	Incorrect definition. Not a group of variables- is a single dimensionless number.	Suggestion: " The dDimensionless number group of variables, which is widely accepted in the field of 165 fluid dynamics, to help used to calculate if to predict the type of describe flow patterns- (as laminar or turbulent)-under different fluid flow conditions. (The Re is based on four factors: the 167 diameter of the pipe and the viscosity, density and average-linear velocity of a 168 fluid.) "	
PG	164	171	5.2.3	Te	Incorrect definition. Reynolds Number typically not based on pipe diameter for sewer transport. While pipe diameter is necessary for calculating relevant variables for determining the Reynolds Number, it is not a value on which the Reynolds Number is specifically calculated.	Revise with definition of Reynolds Number relevant for wastewater.	

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PG	164	171	5.2.3	Te	<p>Majority of language common with definition for Reynolds Number in "ISO TR 24524: WD 3" but cites a different reference. From "ISO TR 24524: WD 3": "dimensionless parameter used in the field of fluid dynamics to quantify sheer forces and help predict the characteristic of flow (laminar, turbulent) in different fluid flow conditions Note 1 to entry: Re is based on four factors for flow in pipes: the diameter of pipe and the viscosity, density and average linear velocity of the fluid. SOURCE: adapted from: US National Oceanic and Atmospheric Administration.] From IWSFG PAS-2: "The dimensionless group of variables, which is widely accepted in the field of fluid dynamics, to help predict the type of flow patterns (laminar or turbulent) under different fluid flow conditions. (The Re is based on four factors: the diameter of the pipe and the viscosity, density and average linear velocity of a fluid.) SOURCE: Excerpted from Unit Operations of Chemical Engineering, 4th Ed. By McCabe, Smith, Harriott (McGraw Hill) 1985</p>	<p>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. Verify if the source of the definition is Unit Operations of Chemical Engineering or NOAA. Further, provide a page number if the McCabe, et. al., reference is retained.</p>	

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PG	181	181	5.2.5	Te	Incorrect definition. Describe the process by which a whole or dispersed piece of a material loses buoyancy during sewer transport or in a primary clarifier. The buoyant force exerted on a material (whole or dispersed) from wastewater is present whether the material floats or sinks. While loss of buoyancy would result in an object or material that can float to sink, this is not the mechanism that results in the deposit of sand in a sewer, for example. The force of gravity acting on a grain of sand is greater than the counter-acting buoyant force, and as a result the sand settles or sinks; the sand does not lose buoyancy. The same is true for a whole or dispersed material.	Revise definition. Remove "loss of buoyancy" concept, or provide reference. In either case, cite standard reference material as source.	
PG	196	199	5.3.4.	Te	Contradicts Foreword. Paragraph 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 establish the purpose of the PAS as follows (bold, underline): "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 it <u>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."	

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PG	201	202	5.3.4	Te	Incomplete. None of the PAS documents clarify how the requirements of PAS-3 are necessary to prevent a product from "materially adversely" impacting wastewater treatment systems of the downstream environment.	Add definition of "materially adversely" impact in the context of sewerage, wastewater treatment and receiving environments. Cite standard reference as source.	
PG	201	202	5.3.4	Te	Incorrect. Neither lines 196-199 specifically, nor the PAS documents in general, describe suitable "conditions." Rather as noted in Lines 196-199, the PAS describe suitable attributes and/or performance of "products."	Revise Line 202: "Note: The IWSFG Publicly Available Specifications (PASs) provide protocols and tests to determine if a product is flushable clarify these-suitable conditions."	
PG	252	265	5.4	Te	Unreferenced.	Add references.	

end