IWSFG PAS 1: 2017 – Environmental Health and Safety Requirements

PUBLIC COMMENT VERSION

Forward

The International Wastewater Services Flushability Group (IWSFG) is a worldwide coalition of national and regional wastewater services' associations and individual wastewater services.

The work of preparing the standards is carried out by various drafting groups comprising volunteers designated by the principal and the supporting participants of the group. They participate on a voluntary basis, without remuneration of any kind.

> *The criteria for flushability and the appropriate test methods are the product of a global consensus of the coalition members and reflect the hydraulic, mechanical and environmental conditions of drain lines, various onsite treatment and wastewater collection and treatment systems as well as those of the receiving waters for treatment plant effluents.*

The task of the group was to prepare standards reflecting the above purpose.

Wastewater services act for the public good as a public service. The group expects manufacturers and distributers of their products to act in a socially responsible and environmentally sustainable manner by adhering to the established standards.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The IWSFG shall not be held responsible for identifying any or all such patent rights.

Contents

1 Introduction

Wastewater process systems are designed to receive, treat, and convey sanitary discharges[1] that, after treatment, are subsequently disposed of as:

a. liquid effluents to the aquatic environments of lakes, rivers, and oceans
b. solid residuals (biosolids) for application to land for their inherent nutrient values
c. solid residuals incinerated or digested for energy recovery, or as
d. solid residuals to be sent to landfill sites

Typical waste streams include toilet paper, human waste, food waste, detergents and cleaning agents. In recent years, new products such as moist wipes and toilet bowl cleaning products have been introduced worldwide - many of these are identified as "flushable" products. Other products such as tampons, condoms, and facial tissues are commonly but inappropriately flushed. The physically adverse effects of the introduction of such products on wastewater systems (clogging and plugging) have already been identified but numerous other environmental effects have not been studied systematically. 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". 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 "flushable". By adhering to these test methods and providing the appropriate advice to the product users regarding their after use disposal of such products will ultimately lead to the long-term sustainability of wastewater systems and the minimization of potential problems such as pipe blockages and equipment failures in sewer networks.

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 standards as being not "flushable" and to encourage users to dispose of such products after use in a more appropriate manner.

Hence, flushed products comprised of materials or chemicals that would be harmful to the environment [1], [2], [3], [4], or to public health, or to the operation of a wastewater system, should not be identified as being flushable.

2 Purpose

The purpose of this Publicly Available Specifications (PAS) document is to set out product characteristics that are harmful to the environment and public health. Products having such characteristics should not be discharged (flushed) into wastewater conveyance and treatment systems due to the hydraulic, mechanical and/or environmental conditions found in those systems.

[1] In some instances, by agreement with a commercial or industrial client, a wastewater utility may agree to accept discharges containing chemicals or other contaminants not normally found in sanitary discharges. Acceptance is by specific agreement that such chemicals or contaminants can be safely treated within the treatment processes of the wastewater utility. Otherwise pretreatment by the commercial or industrial organization is required to bring the discharge into conformity with the established acceptable quality.

3 Scope

The scope of this PAS document includes all products that a manufacturer or distributer may wish to identify as being flushable, and all products, which by the location of their use and likely contamination by human excreta, are likely to be flushed through a toilet into a drain line and a wastewater conveyance and treatment system.

4 References

4.1 Normative References

PAS 0:2017 *Terms and Definitions for Determination of Flushability*

TAPPI/ANSI Test Method T 401 om-15, Fiber Analysis of Paper and Paperboard, as amended.

TAPPI/ANSI Test Method T 402 sp-13, Standard conditioning and testing atmospheres for paper, board, pulp hand sheets, and related products.

4.2 Informative References or Relevant Annexes

Annex 1 - Substances that are prohibited in some national legislation.

5 Definitions

See: IWSFG PAS 0:2017 *Terms and Definitions for Determination of Flushability*

6 Principles

The PAS is used to reduce a product's potential to create environmental health and safety risks to wastewater transport and treatment systems upon its release into the environment.

It is expected that product manufacturers will apply the PAS and act accordingly as they are familiar with the material composition of their products.

7 Acceptance Criteria for Product Qualities and Characteristics

7.1 Applied Substances

Any product including any components thereof or substances (such as bonding agents and lotions) used within or on the product that are banned for environmental and human health reasons by the national legislation of a country where the product is to be marketed, is NOT FLUSHABLE by this standard.

Annex 1 (informative) provides a list of such substances that currently are or may be prohibited by national legislation.

7.2 Substrates

7.2.1 Plastics

Any product that intentionally includes any plastic material is NOT FLUSHABLE by this standard. [1], [2], [3], [4].

7.2.2 Regenerated Cellulose Fibres

Any product using a substrate that intentionally includes more than 20% regenerated cellulose is NOT FLUSHABLE by this standard. [1], [2], [3], [4].

NOTE to Entry: The presence of microfibres in aquatic environments, which are largely believed to originate from wastewater treatment plant effluent discharges, is of increasing concern due to their potential take-up in the food chain. While it is believed that many of these fibres come from washing clothes having rayon and related fibres, there is apparently no reason why flushable products cannot be produced with satisfactory qualities for use and with reduced levels of this material. Accordingly, the IWSFG proposes to reduce the currently designated level of more than 20% intentionally included regenerated cellulose fibres according to the following schedule:

After January 1, 2019, no more than 15% intentionally introduced regenerated cellulose fibres;

After January 1, 2021, no more than 10% intentionally introduced regenerated cellulose fibres;

After January 1, 2023, no more than 5% intentionally introduced regenerated cellulose fibre, and

After January 1 2025, no intentionally introduced regenerated cellulose fibres.

7.2.3 Test Method

The test method used to set these criteria is TAPPI/ANSI T 401 om-15 Fiber Analysis of Paper and Paperboard, as amended.

NOTE: This test identifies those fibres that are made of plastic or of regenerated cellulose as being “synthetic”.

The product is not flushable if a fibre type identified as “synthetic” is found during the analysis. If the synthetic material is determined to be regenerated cellulose, then the conditions in 7.2.2 apply.

7.3 Other materials

Any product containing geological materials such as clay, sand, or chert, is NOT FLUSHABLE by this standard.

7.4 Excreta

Wastewater treatment systems were designed to protect public health by accepting and treating human excreta. Many hygiene products intended for use by humans in sanitary applications are also considered here.

7.5 Health-care Wastes

According to the World Health Organization, hospitals and clinical facilities, laboratories and research centres, mortuary and autopsy centres, animal research and testing laboratories, blood banks and collection facilities, and nursing homes for the elderly generate a diverse range of waste materials that must be managed properly [5]. Typical waste types from health-care institutions include the following:

1. **infectious waste:** waste contaminated with blood and other bodily fluids (e.g. from discarded diagnostic samples), cultures and stocks of infectious agents from laboratory work (e.g. waste from autopsies and infected animals from laboratories), or waste from patients in isolation wards and equipment (e.g. swabs, bandages and disposable medical devices)
2. **pathological waste**: human tissues, organs or fluids, body parts and contaminated animal carcasses
3. **sharps:** syringes, needles, disposable scalpels and blades, etc.
4. **chemicals:** for example, solvents used for laboratory preparations, disinfectants, and heavy metals contained in medical devices (e.g. mercury in broken thermometers) and batteries
5. **pharmaceuticals:** expired, unused and contaminated drugs and vaccines
6. **genotoxicwaste:** highly hazardous, mutagenic, teratogenic or carcinogenic materials, such **as** cytotoxic drugs used in cancer treatment and their metabolites
7. **radioactive waste:** such as products contaminated by radionuclides including radioactive diagnostic material or radiotherapeutic materials; and **non-hazardous or general waste:** waste that does not pose any particular biological, chemical, radioactive or physical hazard

Note: None of these waste types can be flushed through toilets into the wastewater infrastructure; instead, they must be handled according to the relevant policies and regulations.

Only dry tissues, moist tissues or other products that comply with the PAS test standards can be flushed as health-care wastes into drain lines and wastewater conveyance systems.

Bibliography

[1] *Biodegradable Plastics and Marine Litter, Misconceptions, Concerns and Impacts on Marine Environments*, United Nations Environment Programme (UNEP), 2015.

[2] *When Microplastic is Not Plastic: The Ingestion of Artificial Cellulose Fibres by Macrofauna Living in Seagrass Macrophytodetritus*, Environmental Science and Technology, 2015, 49, 11158-11166, American Chemical Society.

[3] *Anthropogenic debris in seafood: Plastic debris and fibers from textiles in fish and bivalves sold for human consumption*, National Academy for the Advancement of Science, USA, Scientific Reports 5, Article number: 14340 (2015).

[4] *Misleading Claims and Misuse of Standards Continues to Proliferate in the Nascent Bioplastics Industry Space*, bioplastics MAGAZINE [01/10] page 38.

[5] *Safe management of wastes from health-care activities*, 2nd ed., World Health Organization, http://www.who.int/water_sanitation_health/publications/safe-management-of-wastes-from-healthcare-activities/en/

Annex 1 - Substances that Are Prohibited in Some National Legislation.

(Informative)

The following substances are or may be prohibited by national legislation:

- Glutaraldehyde
- Microbeads
- Triclocarban
- Triclosan