

1                                    **International Wastewater Services Flushability Group**  
2                                    **IWSFG PAS 0: 2017 Terms and Definitions for Determination of Flushability**

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10 written permission from the IWSFG.

11 Once finalized, the IWSFG will permit the downloading and use of the documents without charge for  
12 the purpose of determining whether a product is likely to be considered flushable and to be so  
13 identified.

**Forward**

The International Wastewater Services Flushability Group (IWSFG) is a worldwide coalition of national and regional wastewater service associations and organizations 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 group 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 service organizations act 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.

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.

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## 73 1 Introduction

74

75 Wastewater process systems are designed to receive, treat, and convey sanitary discharges<sup>1</sup> that, after  
76 treatment, are subsequently disposed of as:

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

81 Typical waste streams include toilet paper, human waste, food waste, detergents and cleaning agents. In  
82 recent years, new products such as moist wipes and toilet bowl cleaning products have been introduced  
83 worldwide - many of these are identified as “flushable” products. Other products such as tampons,  
84 condoms, and facial tissue are commonly but inappropriately flushed. The physically adverse effects of  
85 the introduction of such products to wastewater systems (clogging and plugging) have already been  
86 identified but numerous other environmental effects have not been studied systematically. For  
87 example, various flushed products may comprise materials and chemicals that can be harmful to the  
88 environment; hence, such products should not be identified as “flushable”. Accordingly, the purpose of  
89 the flushability test along with others presented in this IWSFG series is to define the qualities and  
90 characteristics of those products that may truly be considered as being “flushable”. By adhering to  
91 these test methods and providing the appropriate advice to the product users regarding the after use  
92 disposal of such products will ultimately lead to the long-term sustainability of wastewater systems and  
93 the minimization of potential problems such as pipe blockages and equipment failures in sewer  
94 networks.

95 The goal of the IWSFG is not to ban the production and/or use of these products, but to encourage  
96 manufacturers to clearly and prominently identify those products that do not meet the established  
97 IWSFG standards as not being “flushable” and to encourage users to dispose of such products after use  
98 in a more appropriate manner.

99 Standardization requires the establishing of a language common to the various stakeholders in order to  
100 promote policy understanding and conformity. Hence, the purpose of this Publicly Available  
101 Specifications (PAS) document is to set out the definitions and abbreviations related to the  
102 determination of flushability.

103

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<sup>1</sup> 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.

## 104 2 Purpose

105

106 The purpose of this Publicly Available Standard (PAS) document is to provide all the definitions and  
107 abbreviations used in the PAS documents and the established standards. Hence, it will provide  
108 continuity between all the documents. Nevertheless, in some individual PAS documents, definitions  
109 specific to that particular PAS are shown.

## 110 3 Scope

111 This document defines the terms and definitions and abbreviated terms that constitute a common  
112 terminology to stakeholders in the manufacture and sale of hygiene products and in the operation of  
113 wastewater conveyance and treatment systems.

114 The following definitions are provided in this document:

- 115 a. the definitions of the various components of a wastewater conveyance and treatment system
- 116 b. the definitions of the hydraulic, mechanical and environmental conditions within wastewater  
117 conveyance and treatment systems
- 118 c. the definitions of the components of hygiene products

119 The following definitions are beyond the scope of this document:

- 120 a. those terms used to describe the performance of hygiene products in their intended uses

## 121 4 References

### 122 4.1 Normative References

123 There are no normative references for this document.

### 124 4.2 Informative References or relevant Annexes

125 There are no informative references or annexes for this document.

## 126 5 Definitions

127 For the purposes of the IWSFG documents, the following terms and definitions apply.

### 128 5.1 Definitions Related to Components of Wastewater Collection and Treatment 129 Systems

#### 130 5.1.1 Collection System

131 a network of pipes that collects wastewater discharged from a drain  
132 line and transports it to a treatment plant

133  
134 Note: The collection system uses gravity flow where possible and pumps are used  
135 at various points within the collection network in flat land regions and/or where  
136 wastewater must be lifted in the case of a height difference.

137 5.1.2 Drain Line

138 a pipe system that transports building wastewater to an on-site treatment  
139 system or to a collection system for municipal wastewater.

140

141 Note: This term applies to gravity, force and vacuum systems.

142 5.1.3 Infrastructure

143 a system of facilities, equipment and services needed for the operation of an  
144 organization.

145 Note: In a wastewater utility, it is advisable to reserve the term “infrastructure”  
146 for physically fixed equipment and installations.

147 Source: ISO 9000: 2015, Quality Management, 3.5.2, Modified – Note added

148 5.1.4 On-site Treatment System

149 a wastewater treatment system located on the property where the wastewater  
150 is generated.

151

152 Note: 1. An example of an on-site treatment system is a septic tank.

153 2. A properly maintained on-site treatment system requires the regular  
154 removal of sludge and its transport for treatment and disposal at a  
155 municipal facility.

156

157 5.1.5 Toilet

158 a sanitary appliance that consists of a pan, seat, flushing apparatus, and any  
159 necessary flush pipes.

160

161 Note: 1. Also known in some regions as a water closet

162 2. Modified to delete the reference “US” in front of the term.

163

164 SOURCE: ISO 6707-1:2014(en), 5.4.9

165 5.1.6 Wastewater

166 water originating from any combination of domestic, institutional, commercial  
167 or industrial activities, surface runoff or any incidental sewer inflow/infiltration,  
168 which can include collected stormwater that is discharged into the environment  
169 or sewer

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171 Note: The definition of wastewater here also includes sanitary wastes in an  
172 undiluted form.

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### 5.1.7 Wastewater Collection System

a system of conduits used to transport human waste and wastewater

- Note: 1. A system typically begins with connecting pipes leading from a building to one or more levels of larger sewer pipes, which terminate at a wastewater treatment plant.
2. The flow in sewer pipes can be either generated by gravity, pumped or be a combination of the two means..
3. A wastewater conveyance system can also transport stormwater.

### 5.1.8 Wastewater Services

services provided by wastewater utilities acting for the public good as a public service

### 5.1.9 Wastewater System

a system designed for the collection, transportation, treatment and discharge of wastewater and wastewater residues

SOURCE: EN 24511:2007, Activities relating to drinking water and wastewater services -- Guidelines for the management of wastewater utilities and for the assessment of wastewater services, 2.52

## 5.2 Definitions Related to the Hydraulic, Mechanical and Environmental Conditions within Wastewater Collection and Treatment Systems

### 5.2.1 Biodisintegration

disintegration caused by biological activity, especially by enzymatic action, leading to a significant change in the chemical structure of a material

Note: A material is biodegradable if it can, with the help of micro-organisms, break down into natural elements (e.g. water, carbon dioxide, or biomass).

SOURCE: ISO 472: 2013, Plastics Vocabulary, 2.1680, modified – Note 1 added



203                   5.2.2 Disintegration

204                   a process in which a product weakens, loses integrity, and breaks into smaller  
205                   parts

206                   Note: 1. Disintegration may be the result of exposure to physical forces or by  
207                   biological action.

208                   2. It is operationally defined by measuring the mass loss of the product  
209                   that passes through sieves after its exposure to specific environmental  
210                   conditions.

211                   5.2.3 Reynolds Number (Re)

212                   the dimensionless group of variables, which is widely accepted in the field of fluid  
213                   dynamics, to help predict the type of flow (laminar or turbulent) under different  
214                   fluid flow conditions. (The Re is based on four factors: the diameter of the pipe  
215                   and the viscosity, density and average linear velocity of a fluid.)

216  
217                   SOURCE: Excerpted from Unit Operations of Chemical Engineering, 4th Ed. By  
218                   McCabe, Smith, Harriott (McGraw Hill) 1985

219

220                   5.2.4 Residues

221                   sub products resulting from different processes applied to wastewater.

222                   Note: Residues can be liquid, solid, gaseous or a mixture, e.g. sludges, septage,  
223                   sand or grit, grease, and debris.

224

225                   5.2.5 Settling

226                   the process by which the whole, or the dispersed pieces, of a product will  
227                   deposit themselves at the bottom of a column of liquid

228

229                   5.3           Definitions Related to [hygiene] Products

230                   5.3.1   Applied Substances

231                   substances used within or on the substrate to achieve an intended purpose

232                   Note: These purposes for use include improved wet strength, smoothness,

233 disinfection, topical treatment, and skin softeners, e.g. bonding agents, and  
234 lotions.

### 235 5.3.2 Dry Tissues

236 tissues that contain neither free moisture nor bound moisture, e.g. toilet paper,  
237 and facial tissues, etc.

238 SOURCE: adapted from ISO 24294:2013(en), 6.14

239

### 240 5.3.3 Excreta

241 waste products of the metabolism, in solid or liquid form, e.g. feces, mucous,  
242 semen or urine

243

### 244 5.3.4 Flushable Product

245 a product that is considered suitable for disposal via a toilet and drain line to an  
246 on-site treatment system or to a wastewater collection system and a  
247 wastewater treatment system because it will not:

- 248 a. materially adversely impact those systems  
249 b. be unrecognizable in effluent upon leaving on-site and municipal  
250 wastewater treatment systems or in the post-treatment products of  
251 treatment sludges.

252 Note: 1. "Suitable" means product meets the criteria set out in IWSFG  
253 Standard 1:2017 – Criteria for the Determination of  
254 Flushability.

255 2. "Suitable" means being contaminated with excreta.

256 3. Flushable products in this document are characterized as  
257 being either dry tissues, moist tissues or other products.

258

### 259 5.3.5 Moist Tissues

260 tissues that contain or are coated with an applied substance that is free of  
261 moisture

262 Note: Coatings are substances that may be applied to the tissue for disinfection,  
263 hygienic, smoothness, therapeutic, topical treatment or fragrancypurposes, e.g.  
264 disinfecting wipes, and cosmetic removal tissues.

265 SOURCE: adapted from ISO 24294:2013(en), 6.14

266

267 5.3.6 Other Products

268 products that are neither dry nor moist tissues that have an intended hygienic  
269 purpose e.g. condoms, colostomy bags, litters, medical devices, and flushable  
270 toilet brushes

271

272 5.3.7 Primary Packaging

273 packaging designed to come into direct contact with the contents, e.g.  
274 toothpaste.

275 SOURCE: ISO 22715:2006 Cosmetics -- Packaging and labelling, 2.1

276 5.3.8 Product

277 tangible output that is the result of a process that does not include activities,  
278 which are performed at the interface between the supplier (provider) and the  
279 customer

280 SOURCE: ISO 9000: 2015 Quality management systems — Requirements

281 5.3.9 Quality

282 degree to which a set of inherent characteristics fulfills standardized  
283 requirements

284 Note: “Inherent” as opposed to “assigned”, means existing in the object.

285 SOURCE: ISO 9000: 2015, Quality Management, 3.6.2, modified – Note 1 has  
286 been deleted.

287 5.3.10 Sales Packaging

288 package, with labelling and contents presented as a sales unit to the user or  
289 consumer at the point of retail

290 alternative terms: consumer packaging, retail packaging

291 Note: A sales packaging can comprise a secondary packaging wrapping or container  
292 covering one or more of the primary packaging elements or, it can consist of a  
293 single primary packaging element containing the product.

294 SOURCE: ISO 21067:2007, Packaging – Vocabulary, 2.2.5, with modification.

295 5.3.11 Substrate

296 a base material comprising the essential structure of a product and onto which  
297 various substances may be applied to achieve an intended purpose.

298 5.3.12 Tissue

299 a product of base paper made from lightweight, dry or wet crepe paper and  
300 some non-creped paper, predominantly made from natural fibres

301 Note: 1. Tissues may be dry or moist.

302 2. Moist tissues are sometimes known as “wipes”.

303 SOURCE: ISO 12625-1:2011 Tissue paper and tissue products —Part 1:  
304 General guidance on terms, 4.60 ( see also Clause 3).

305 5.3.13 Toilet Paper

306 tissue paper product intended for sanitary use in a toilet

307 SOURCE: ISO 12625-1:2011 Tissue paper and tissue products —Part 1: General  
308 guidance on terms, 4.63

309

310 5.4 Terms Related to Testing Process

311 5.4.1 Acquisition

312 the process performed by the testing laboratory to obtain by random selection,  
313 products available or intended to be available in the subject market

314 Note: Where the products are at a pre-production stage, the manufacturer  
315 may provide to the testing laboratory pre-production samples in  
316 sufficiently large numbers to allow a random selection by the testing  
317 laboratory.

318 5.4.2 Ambient Laboratory Conditions

319  $23^{\circ}\pm 10^{\circ}\text{C}$  and  $50\% \pm 20\%$  relative humidity

320 SOURCE: ISO 8336:2009(en), 3.16

321 5.4.3 Conformity

322 fulfillment of a set requirement

323 Note: In English, the word “conformance” is synonymous but deprecated. In  
324 French, the word “compliance” is synonymous but deprecated.

325 SOURCE: ISO 9000: 2015, Quality Management, 3.6.11, modified – Note 2 has  
326 been deleted.

#### 327 5.4.4 Performance

328 measurable result

329 Note: 1. Performance can relate either to quantitative or qualitative findings.

330 2. Performance can be related to either processes or products.

331 SOURCE: ISO 9000:2015, Quality Management, 3.7.8, modified – Note 2  
332 amended by limiting application to processes and products. (Note 3 has  
333 been deleted.)

#### 334 5.4.5 Previously Tested Products

335 product residuals recovered from a successful test

336 Note: For some tests, it is preferred that the products to be tested be those that  
337 have been recovered from the Toilet Clearance Test (IWSFG PAS 2A) or the Drain  
338 Line Flow Test (IWSFG PAS 2B).

#### 339 5.4.6 Regenerated Cellulose

340 cellulose regenerated from a solution of cellulose or from a cellulose derivative,  
341 e.g. rayon, and lyocell

342 SOURCE: ISO 472:2013(en), Plastics — Vocabulary, 2.615

#### 344 5.4.7 Specification

345 requirements defined in a document for the performance of a product

346 SOURCE: ISO 12576-2: Thermal performance of windows and doors 2008, 3.7

#### 347 5.4.8 Unit Size

348 The Unit size for each of the following product categories can be found in  
349 Section 8 of the individual test methods.

- 350 • Dry Tissues
  - 351 ○ Toilet Paper
  - 352 ○ Facial Tissue
- 353 • Moist Tissues
- 354 • Other Products
- 355

356 **6 Abbreviations**

357 6.1 DOL

358 dissolved oxygen level

359 6.2 fps

360 feet per second, also shown as f/s, f/sec.

361 6.2 mps

362 metres per second, also shown as m/s, m/sec.

363 6.3 rpm

364 Revolutions per minute (abbreviated rpm, RPM, rev/min, r/min) is a measure of the  
365 frequency of rotation, specifically the number of rotations around a fixed axis in one  
366 minute. It is used as a measure of rotational speed of a mechanical component.

367 6.4 TSS

368 total suspended solids

369

370 **Bibliography**

371 ISO and IEC maintain terminological databases for the use in standardization at the following addresses:

- 372 a. IEC Electropedia: available at <http://www.electropedia.org/>  
373 b. ISO Online Browsing Platform: available at <http://www.iso.org/obg>

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