

Prefabricated sanitation systems without connection to water supply and sewage system - Requirements and product features

Contents	Page
Foreword	5
Introduction	6
1 Scope	8
2 Normative references	8
3 Terms and definitions.....	9
4 Symbols and abbreviations.....	14
5 Requirements and product features	15
5.1 General	15
5.2 Frontend (capture elements)	15
5.2.1 General	15
5.2.2 Category frontend (without/with line or transport to backend)	16
5.2.3 Design parameters frontend	17
5.2.4 Separation of material flows	17
5.2.5 Additives	17
5.2.6 Odour	17
5.2.7 Indoor air	18
5.2.8 Noise	18
5.2.9 Visibility and accessibility of excreta	18
5.2.10 Cleanability and surface finish.....	19
5.2.11 Tightness.....	19
5.2.12 Structural load-bearing capacity.....	19
5.2.13 Service life	19
5.2.14 Fire behaviour	19
5.2.15 Electrical safety.....	20
5.2.16 Energy consumption	20
5.2.17 Risk of injury and moving parts	20
5.2.18 Hygiene safety	21
5.2.19 Operating and maintenance requirements	21
5.2.20 Installation instructions	21
5.2.21 User manual	22
5.3 Backend (treatment elements).....	22
5.3.1 General	22
5.3.2 Categories backend.....	23
5.3.3 Design parameters and capacity backend	24
5.3.4 Output backend.....	25
5.3.5 Additives	25
5.3.6 Odour	26
5.3.7 Air emissions	26
5.3.8 Treatment, cleaning performance and resource recovery	26
5.3.9 Recyclable products	29
5.3.10 Material flows into the environment	29
5.3.11 Residual materials for disposal	29
5.3.12 Special pollutants in the output.....	30
5.3.13 Noise	30
5.3.14 Tightness.....	30
5.3.15 Stability.....	30
5.3.16 Service life	30

5.3.17	Fire behaviour and explosion protection	31
5.3.18	Electrical safety	31
5.3.19	Energy consumption.....	31
5.3.20	Temperature and radiation	32
5.3.21	Risk of injury, moving parts and emergency shutdown	32
5.3.22	Hygiene safety	32
5.3.23	Operating and maintenance requirements.....	33
5.3.24	Installation instructions.....	33
5.3.25	User manual	33
6	Testing and test methods.....	34
6.1	General.....	34
6.2	Testing additional parameters	34
6.3	Assembly and installation	34
6.4	Test conditions.....	35
6.5	Technical inspection	35
6.6	Test operation and maintenance	35
6.7	System feed (input).....	36
6.7.1	General.....	36
6.7.2	Testing category 2 backend	36
6.8	Test sequence, duration and sampling.....	37
6.8.1	General.....	37
6.8.2	Sampling, batch method.....	37
6.8.3	Sampling, continuous method.....	37
6.9	Test plan.....	38
6.10	Test methods	38
6.10.1	General information and overview of test methods	38
6.10.2	Odour emissions	39
6.10.3	Air emissions	40
6.10.4	Noise	41
6.10.5	Tightness.....	41
6.10.6	Structural load-bearing capacity and stability	42
6.10.7	Fire behaviour and explosion protection	43
6.10.8	Electrical safety.....	44
6.10.9	Energy consumption.....	44
6.10.10	Cleaning performance and resource recovery.....	44
6.10.11	Microbiological parameters.....	45
6.10.12	Residual materials for disposal and special pollutants	46
6.11	Observations during the test	46
7	Manufacturer's specifications, marking and reports.....	47
7.1	Manufacturer's specifications	47
7.2	Test report.....	47
7.3	Marking.....	47
7.4	Designation	48
7.5	Declaration of performance	48
Annex A (normative)	General notes.....	50
A.1	Notes for the conversion of the design parameters	50
A.2	Notes on control checks after commissioning — type and frequency	50
A.3	Assessment and verification of constancy of performance	50
Annex B (informative)	Notes on the necessary containment of odours and insects as an important hygiene criterion	51
Annex C (informative)	Examples for declarations of performance	52
C.1	Examples for declaration of performance, frontend and backend	52
C.2	Examples of common methods	54
Annex D (informative)	Critical pollutant emissions with typical emission limit values	56
Bibliography		57

Figures

Figure 1 — Schematic drawing of an SaNoWa using the example of a dry separation toilet	7
Figure 2 — Material flows for assessing cleaning performance and resource recovery with representation of a TTT as an example (Image source: Stäudel, 2017)	28
Figure 3 — Load test, frontend	42

Tables

Table 1 — Overview requirements/product features and testing — Frontend.....	16
Table 2 — Requirements/product features and testing overview — Backend	23
Table 3 — Categories for the backend	24
Table 4 — Indicator organisms for pathogens	37
Table 5 — Overview of the test methods to be carried out	39
Table 6 — Allowable percentage of observations where odour is reported as unpleasant or unacceptable	40
Table 7 — Tightness tests according to DIN EN 12566-3	42
Table 8 — Overview of load situations and stability tests, backend	43
Table 9 — Declaration of performance format	49
Table A.1 — Control tests after commissioning.....	50
Table C.1 — Example: Declaration of performance, frontend, according to DIN 30762.....	52
Table C.2 — Example: Declaration of performance, backend, according to DIN 30762	53
Table D.1 — Air emissions and limit values according to ISO 30500, modified.....	56