

Summary* of Requirements: ISO 30500 Non-sewered sanitation systems — Prefabricated integrated treatment units — General safety and performance requirements for design and testing

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ISO30500 Performance Requirement	
Testing Requirements	
2018	2025
Duration of the testing period shall be no less than 32 days and may be extended beyond the suggested 32-day schedule to accommodate backend processes that require more time.	Duration of the testing period shall be no less than 22 days and may be extended beyond the suggested 22-day schedule to accommodate backend processes that require more time. Backend process to reach steady state / stable conditions prior to testing.
The system shall undergo ‘ normal loading ’ and ‘ stress loading ’ patterns.	The system shall undergo ‘ normal loading ’ and ‘ stress loading ’ patterns.

Environmental Parameters for Effluent and recirculated water	2018		2025	
	Unrestricted urban uses (Cat A)	Restricted urban uses (Cat B)	Unrestricted urban uses (Cat A)	Restricted urban uses (Cat B)
COD	≤ 50 mg/l	≤ 150 mg/l	≤ 50 mg/l	≤ 150 mg/l
TSS	≤ 10 mg/l	≤ 30 mg/l	≤ 10 mg/l	≤ 30 mg/l
BOD	-	-	≤ 10 mg/l	≤ 30 mg/l
Total nitrogen	≥ 70% reduction		≥ 70% reduction or ≤ 15 mg/l (concentration)	
Total phosphorus	≥ 80% reduction		≥ 80% reduction or ≤ 2 mg/l (concentration)	
pH	6 to 9		6 to 9	
Colour (for recirculated water only)	-		≤ 30 pt-co pcu or mg/l	

Human health Parameters for Solid Output dry basis and Effluent (surrogate)	2018		2025	
	Maximum	LRV	Maximum	LRV
Bacterial pathogens (<i>E. coli</i>)	≤ 100 CFU/g or l	≥ 6	≤ 100 CFU/g or l	≥ 6
Viruses (<i>MS2 Coliphage</i>)	≤ 10 PFU/g or l	≥ 7	≤ 10 PFU/g or l	≥ 7
Helminths (<i>Ascaris suum</i> viable ova)	≤ 1 #/g or l	≥ 4	≤ 1 #/g or l	≥ 4
(Not required if unable to reasonably procure sufficient viable helminth ova prior to testing)				

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Protozoa (<i>viable Clostridium perf. spores</i>)	≤ 1 CFU/g or 	≥ 6	≤ 1 CFU/g or	≥ 6
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Air Emissions	2018		2025 (Unit Conversion)	
	Indoor (time frame : average level)	Outdoor (time frame : average level)	Indoor (time frame : average level)	Outdoor (time frame : average level)
CO	1 h: 28 ppmv	1 h: 80ppmv	1 h: 35 mg/m ³	30 min: 100 mg/m ³
NO _x (NO + NO ₂)	1 h: 99 ppbv	1 h: 195 ppmv	1 h: 203 µg/m ³	30 min: 400 mg/m ³
SO ₂	1 h: 6.8 ppbv	1 h: 68 ppmv	1 h: 19 µg/m ³	30 min: 194 mg/m ³
CO ₂	1 h: 1 000 ppmv	-	1 h: 1963 mg/m ³	-
VOC	1 h: 187 ppbv	1 h: 12 ppmv	1 h: 300 µg/m ³	30 min: 19 mg/m ³
H ₂ S	30 min: 4.6 ppbv	1 h: 1.9 ppmv	30 min: 7 µg/m ³	30 min: 3 mg/m ³
PAH	-	1 h: 0.001 ppmv	-	30 min: 0.05 mg/m ³
PM _{2.5}	1 h: 25 µg/m ³	1 h: 10 mg/m ³	1 h: 25 µg/m ³	30 min: 10 mg/m ³
NH ₃	1h: 25 ppmv	1 h: 50 ppmv	1 h: 19 mg/m ³	30 min: 38 mg/m ³
Requirements to omit testing	UNABLE to omit testing		- Manufacturer able to proof pollutants not emitted due to NSSS - No leakage between front and backend and flush water is free of harmful gases	

Noise	2018		2025	
	Indoor	Outdoor	Indoor	Outdoor
Max. at any time (L _{pA,max})	≤ 85 dBA	≤ 85 dBA	≤ 85 dBA	≤ 85 dBA
Max. average 24 hours (L _{EX,24h})	≤ 60 dBA	≤ 60 dBA	≤ 60 dBA	≤ 60 dBA

Odour	2018		2025	
	Indoor	Outdoor	Indoor	Outdoor
Observation per test day	180	180	180	180
Number of panelists	2	2	2	2
Number of test days	4 (3 normal + 1 simulant)	4 (3 normal + 1 simulant)	4 (3 normal + 1 simulant)	4 (3 normal + 1 simulant)
Total number of observations	1440	1440	1440	1440
Max. % observations reported as “unpleasant”	≤ 10 % (“unpleasant”)	≤ 10 % (“unpleasant”)	≤ 10 % (“unpleasant” + “unacceptable”)	≤ 10 % (“unpleasant” + “unacceptable”)

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Max. % observations reported as “unacceptable”	≤ 2 %	≤ 2 %	≤ 2 %	≤ 2 %
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Safety and other general requirements		
Design	Mechanical	Electrical
Operating conditions	Evacuation performance	Control system sequence (Optional)
Cultural requirements	Tightness and leakage	Energy discharge
Marking & labelling	Underground systems	Electrical & electronic equipment
Usage interval	Pressure & vacuum equipment	Remote monitoring (Optional)
Risk/safety assessment	Water seal	
Intended capacity	Structural integrity	
Fire and explosion protection	External impacts	
Design lifetime	Backflow prevention	
Accessibility (Optional)	Slip, trip & falling safety	
	Moving & rotating parts safety	
	Ease of cleaning & operations	
	Material durability & fire resistance	
	Cleanability of surface	
	High and low temperature surfaces safety	

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Notes			
		2018	2025
Class System	1	One frontend – backend non-biological	One frontend – backend non-biological
	2	One frontend – backend includes one or more biological treatment processes	One frontend – backend includes one or more biological treatment processes
	3	More than one frontend	Multiple frontend – backend includes one or more biological treatment processes
	4	-	Multiple frontend – backend non-biological
Field Testing		Class 1 field testing ≥ 30 days (No class 4)	Class 1 and 4 field testing ≥ 30 days after start-up period
		Class 2 and 3 field testing ≥ 5 months	Class 2 and 3 field testing ≥ 5 months after start-up period

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