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DEVELOPMENT AND LARGE SCALE TESTING OF WATER REUSE PROCESS TECHNOLOGIES IN WASTE WATER FREE HOUSES AND COMPANIES **BASED ON ULTRAFILTRATION MEMBRANES**



This paper presents the successful use of state-of-the-art membrane filtration and basic biological processes. This advanced treatment of organic matter containing waste water is used for the production of water fit for human consumption. The reuse of water within households, hotels or food production plants requires save and

efficient treatment of waste water to meet drinking water regulations. In order to apply the process all around the world it has to be easy to handle whilst meeting the requirements of health and safety regulations. The installations can therefore be deployed without machinery.

		SBR plant	Trickle filter plant	Planted bed system	Membrane plant	SCAUT	Sewer Treatment plant size 4	Water recycling, Romania
	Waste water parameters							Membrane sten UV Pay treatment Taking shewer
	COD [mg/l]	< 90	< 150	<150	< 90	< 5	< 90 (<40)	A live land step
Retu	BOD [mg/l]	< 25	< 40	< 40	< 25	< 5	< 20 (< 8)	1. Hygienisation 2. Hygienisation and production
sturn stur	Ammonium [mg/I	< 10	(< 10)	(< 10)	< 10	< 2	< 10 (2-3)	Physical T
ge Inlet	Ninorg [mg/l]	(< 25)	(0)		(< 25)	(< 6)	< 18 (< 1)	decolourization Elushing toilets
	Ptotal [mg/I]	(< 2)	(< 2)	. 1 million	(< 2)	(< 0.02) <2(<1)	Thus may be a set of the set of t
	germs in 100 ml	(< 100)	> 1 111111011	> 1 111111011	< 100	0.0	> 1 111111011	
Mechanical	Filterable	50.0	75.0	75.0	0	0	< 20	
Hechanica	substances			1				
pretreatment								
and	Bacteriological	Bacteriological potable water parameters						Aerobic Aerobic
donitrification	Coliform bacteria	not	not	not	not	0	not	biological biological
ucincincution	E celi in 100 ml	achievable	actilicitable	achievable	achievable	0	actilicitable	treatment treatment Mechanical pretreatment
	E. COILIN TOO MI	achievable	achievable	achievable	achievable	•	achievable	and denitrification
Aerobic	Enterococci in	not	not	not	not	0	not	
biological	100 ml	achievable	achievable	achievable	achievable		achievable	Capacity:
treatment	Colony count 20°	not	not	not	not	0	not	Up to 20 000 per d
treatment	C in 1 ml	achievable	achievable	achievable	achievable		achievable	op to zo,ood i per u
	Colony count	not	not	not	not	0	not	60 p.e.
	36º C in 1 ml	achievable	achievable	achievable	achievable		achievable	A x A m3 cmart drums
Membrane stage	Clostridium	not	not	not	not	0	not	4 X 4 III ^o sinal Cululis
1 Hydienisation	perfrigens	achievable	achievable	achievable	achievable		achievable	
1. Hygielisation	in 100 ml	,						1
	Pseudomonas	not	not	not	not	0	not	
	aeruginosa in	achievable	achievable	achievable	achievable		achievable	
	100 ml	_						Water recycling from
	Salmonella spp.	not	not	not	not	0	not	mater recycling rom
		aunevable	aunievable	aunevable	aunevable		aunievable	constation and
WWTP i basement	Purif	'ica'	tini	n a	ııal	īŧν	1 25	a sanitation and
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10	£		-	C .L				nroduction wastewater
10 D.e. + 3,000 l/a	TUNC	τιο	по	Γ τη	1e [DrC	ces	s production wastewater
			-					

Thus, there are simple solutions for many production facilities as well as for many households in arid regions. The latter may also be the case in both permafrost and arid regions. In both cases, there are also considerable energy-related advantages (use of solar power, recycling warm water into excellent guality for human consumption, etc.).

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