BIOLOGICAL WASTEWATER TREATMENT PLANTS

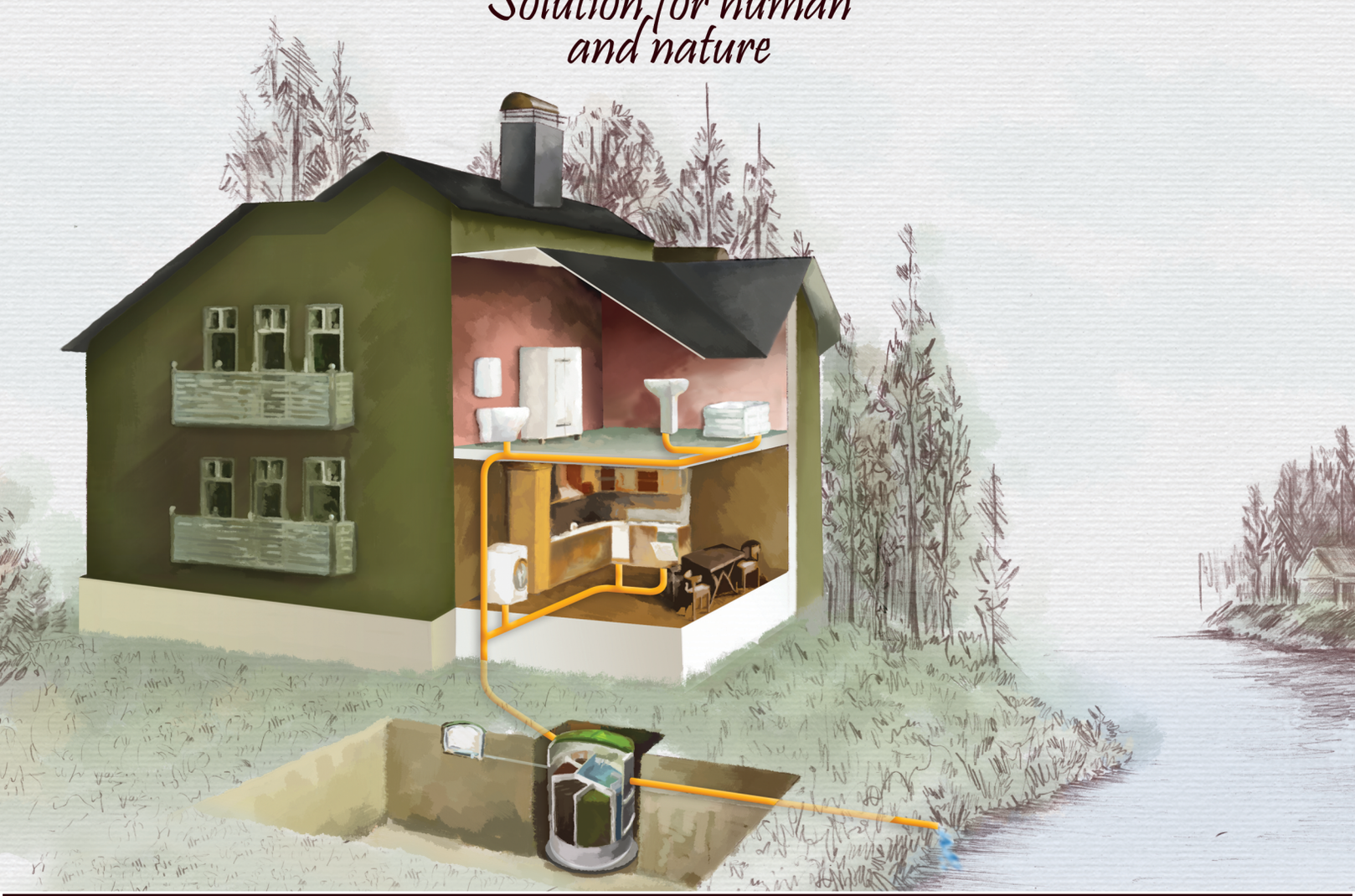
UŽDAROJI AKCINĖ BENDROVĖ

AUGUST IR KO

www.august.lt

1998

Solution for human and nature



Manufacturing • Installation • Planning • Service

Mokslas • Ekonomika • Sanglauda
Europos Sąjunga
Kuriame Lietuvos ateitį

VFL TECHNOLOGY

CE EN 12566-3+A1

TÜV International Certification THÜRINGEN CERT ISO 9001:2008 TIC

TÜV International Certification THÜRINGEN CERT ISO 14001 TIC

TÜV International Certification THÜRINGEN CERT BS OHSAS 18001:2007 TIC

www.august.lt

“August ir KO” UAB was established in 1998. Company performs production, installation and maintenance works of the biological wastewater treatment equipment of the innovative patented (Patent No. 5386; No. 5430; EP 191833) technology. The world is fighting against the pollution of the environment and water, therefore we have created the technology, which processes wastewater beyond any reproach.

Our technology is based on the experience of scientific research, as well as on the development and life experience. Owners of the individual houses, separate villages, schools, coffee-houses, motels and other objects are satisfied with well installed and perfectly operating equipment in Lithuania and the Baltic States, as well as in many European, Asian and African countries.

The company has a certificate, that grants a right to design and do the construction work of the building part.

“August ir Ko” UAB is working according to the quality management standard ISO 9001:2008, environment management system ISO 14001:2004 and workers’ safety and health management system BS OHSAS 18001:2007.

The company motto:

Solution for human and nature

TESTED IN GERMANY

PIA Institute for Wastewater Technology

PERFORMANCE RESULTS

"August ir Ko" UAB
Juodasis kelias 104a, 11307 Vilnius, Lithuania

EN 12566-3, Annex B
"Small wastewater treatment systems for up to 50 PT"

Small wastewater treatment system VFL® bioreactor AT 10
continuous aerated biological process

Nominal organic daily load	0.32	kg BOD_5/d	
Nominal hydraulic daily load	1.20	m³/d	
Material	polypropylene		
Treatment efficiency (nominal sequences)	COD		88.1 %
	BOD_5		97.2 %
	SS		94.0 %
	NH_4-N*		96.7 %
	N_{tot}*		61.7 %
	P_{tot}		47.4 %
Electrical consumption	1.7	kWh/d	

** determined for temperatures ≥ 12°C in the bioreactor.*

Performance tested by:
PIA - Prüfinstitut für Abwassertechnik GmbH
(PIA GmbH)
Hergenrather Weg 30
D-52074 Aachen

Certified according to ISO 9001:2000

Notified Body number: 1739

This document replaces neither the declaration of conformity nor the CE marking.

Prüfinstitut für Abwassertechnik GmbH
geprüft - tested - testé

Elmar Lancé February 2010

PIA Institute for Wastewater Technology

PERFORMANCE RESULTS

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	BOD_5		98.1 %
	SS		98.8 %
	NH_4-N*		96.0 %
	N_{tot}*		62.4 %
	P_{tot}		50.1 %
	Faecal coliforms		99.9 %
Electrical consumption	1.7	kWh/d	

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Elmar Lancé February 2010

The product of the "August ir Ko" UAB in 2006 07 31 – 2007 04 31 was tested in the independent notified Aachen (Germany) laboratory. The test results showed that products AT6-AT50 are in compliance with European Union construction products Directive No. 89/106/EEC, and Annex ZA of CEN standart EN 12566 – 3:2005+A1:2009 "Small wastewater treatment systems for up to 50 PT Part 3: Packaged and / or site assembled domestic wastewater treatment plants". The company was given the right to mark it's products with CE mark.

The company was given the golden medal for the "Lithuanian product of the year 2007".

"August ir Ko" won a National Quality Award On December 2, 2010 the Minister of Economy Dainius Kreivys awarded enterprises and entities for country economy contribution and Lithuanian business development. At the solemn award ceremony "Made in Lithuania" National Quality Award was awarded to "August ir Ko" company.National Quality Award – is an award organized all over the Europe which proves that the company meets particularly high management requirements. In Lithuania the Prize has been awarded since 1998. National Prizes are awarded to companies of 67 countries all over the world, including European Union countries.

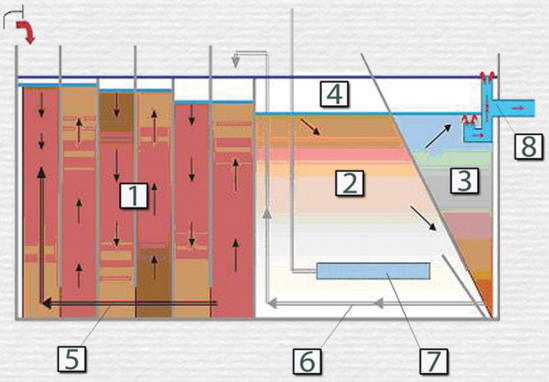
This table will help you to choose the right Wastewater Treatment Plant.

What should you pay attention to?	„August ir Ko“		Other companies		
	AT-6	AT-8			
Population equivalent (min. - max.)	1 - 4	2 - 6			
Daily load with contaminants (kg BOD_5)	0,24	0,36			
Capacity (m^3)	1,73	2,26			
Can I throw the toilet paper?	Yes	Yes			
Is mechanical wastewater pre-treatment available?	Yes	Yes			
Does the equipment treat household chemicals?	Yes	Yes			
Removes phosphorus*	70,1 %	70,1 %			
Removes nitrogen*	78,3 %	78,3 %			
Removes ammonium nitrogen*	95,5 %	95,5 %			
Removes solid suspensions*	95,8 %	95,8 %			
Removes BOD_5*	97,8 %	97,8 %			
Removes COD*	93,2 %	93,2 %			
When will the equipment be launched?	1 day	1 day			
How long does the installation take?	180 days	180 days			
Excess sludge per year (m^3)*	1	1,5			
What is the humidity of the activated sludge?	99 %	99 %			
Is it possible to utilize sludge?	Yes	Yes			
Is it possible to drain treated water off into a basin?	Yes	Yes			
Average annual electricity consumption (kWh)	208	270			
Does it diffuse an offensive odour?	No	No			
Is it possible to see the operating equipment?	Yes	Yes			
The documents required when the equipment is rendered for use since 01.11.2010. CE declaration according to ZA EN 12566-3:2005+A1:2009 norm	+	+			

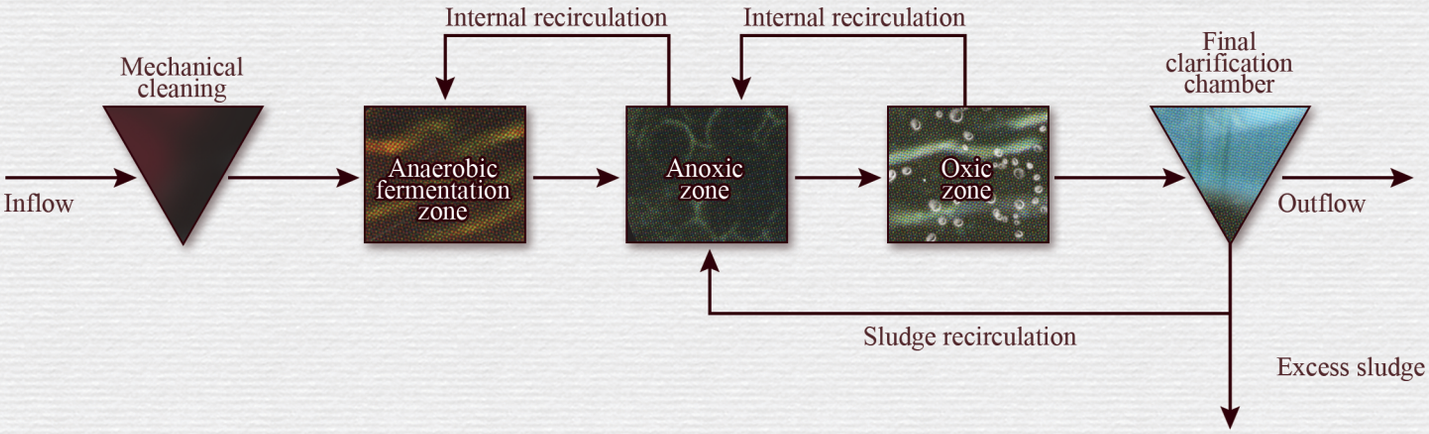
*Details confirmed by a notified, independent laboratory in PIA Aachen (Germany).

Test protocol number, European Union Directives and achievable purification parameters:

PIA 2007-006 EN 12566-3:2005 + A1:2009		**PIA 2007-021** EN 12566-3:2005 + A1:2009 With filter		**No. 00021/TSUS/Y/2009** EN 12566-3:2005+A1: 2009		**PIA VEOLIA** EAU-Protokole		**PIA VEOLIA** EAU-Protokole With filter	
Effectiveness of treatment		Effectiveness of treatment		Effectiveness of treatment		Effectiveness of treatment		Effectiveness of treatment	
COD	88,1 %	COD	91,3 %	COD	88,1 %	COD	93,2 %	COD	95,0 %
BOD_5	97,2 %	BOD_5	98,1 %	BOD_5	97,2 %	BOD_5	97,8 %	BOD_5	98,5 %
SS	94,0 %	SS	98,8 %	SS	94,0 %	SS	95,8 %	SS	98,7 %
NH_4-N	96,7 %	NH_4-N	96,0 %	NH_4-N	96,7 %	P total	70.1 %	P total	71,9 %
N total	61,7 %	N total	62,4 %	N total	61,7 %	NH_4-N	95,5 %	N total	78,3 %
P total	47.4 %	P total	50,1 %	P total	92,5 %	N total	78,3 %	Escherichia Coli	99,99 %
		Faecal coliforms	99,9 %					Coliform bacteria	99,99 %
								Intestinal enterococci	99,99 %



1 Anoxic chamber with "Vertical Flow Labyrinth"
2 Oxic chamber
3 Final clarification chamber
4 Integrated retention area
5 Internal recirculation
6 Recirculation of sludge
7 Fine-bubble aeration
8 Flow control device

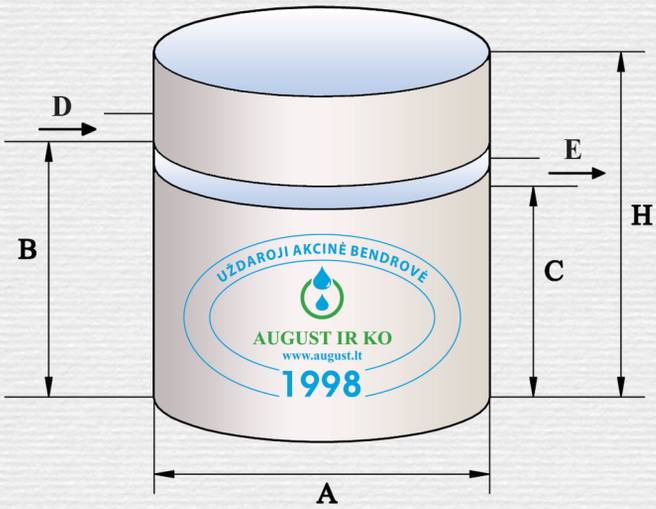


The advantages of the patented "AUGUST ir KO" wastewater treatment plants:

- high treatment efficiency with biological nitrogen and phosphorus removal and disinfection;
- no smell – aerobic conditions maintained in upper layer of all compartments, even in anaerobic compartments;
- not sensitive to peak-flows – due to patented integrated retention chamber and flow control device;
- low operation costs – electric consumption only 208 kWh / year for an individual house (4 P.E.);
- low excess sludge production – only 1 m3 of excess sludge every year from an individual house (4 P.E.);
- the WWTP can be without wasterwater up to 180 days on a standard regime, so it won't cause any problems to you when planning holidays or long journeys.
- can operate in all weather conditions. The content of the tank doesn't freeze because of the biological processes going on;
- conform to highest ecological standards and makes no harm for the nature;
- low investment expenses – because of simple and practical design, low tank volume, easy to transport;
- no mechanical mixing in the anaerobic zone – the only mechanical equipment in the system is the air blower;
- doesn't need much space and doesn't damage the esthetic look of the environment.

Moreover:

- August ir Ko UAB plant can be assembled and launched within 1 working day.
- Wastewater treatment parameters are available as of the moment the plant is started.
- The water treated in August ir Ko UAB wastewater treatment plant can be reused as service water.



TYPE	POPULATION EQUIVALENT		DAILY LOAD WITH CONTAMINANTS (kg BOD_5)	SLUDGE PRODUCTION (m^3/year)	EL.ENERGY CONSUMPTION (kWh/d)	TECHNICAL PARAMETERS					
	Min.	Max.				H(mm)	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
AT-6	1	4	0,24	1	0,6	1800	1400	1300	1150	110	110
AT-8	2	6	0,36	1,5	0,8	2200	1400	1700	1500	110	110
AT-10	3	8	0,48	2	1,2	2000	1750	1500	1250	110	110
AT-12	4	10	0,60	2,5	1,6	2200	1750	1700	1500	110	110
AT-15	5	12	0,72	3	2,2	2200	2050	1700	1500	160	160
AT-20	7	18	1,08	4,5	4,3	2700	2050	2200	2000	160	160
AT-30	10	25	1,50	6,3	7,4	3000	2300	2500	2300	160	160
AT-40	15	35	2,10	8,8	6,5	2700	2850	2200	2000	160	160
AT-50	20	50	3	12,5	11,6	3000	2950	2800	2600	50	160

TYPE	POPULATION EQUIVALENT		DAILY LOAD WITH CONTAMINANTS (kg BOD_5)	DAILY FLOW (m^3/d)	SLUDGE PRODUCTION (m^3/year)	EL.ENERGY CONSUMPTION (kWh/d)	TECHNICAL PARAMETERS					
	Min.	Max.					H(mm)	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
AT-75	25	75	3,60	11,30	18,8	12	3000	3300	2900	2600	50	160
AT-100	30	100	6	15	25	16	3000	3500	2900	2600	50	160
AT-120	40	120	7,20	18	30	20	3000	4000	2900	2600	50	160
AT-150	50	150	9	22,50	37,5	24	3000	4500	2900	2600	50	160
AT-200	70	200	12	30	50	33	3000	5000	2900	2600	50	160
AT-250	80	250	15	37,50	62,5	40	3000	5300	2900	2600	50	160

On 6th April 2010 the company was issued the Certificate of Compliance No. SPSC-8819 “Wastewater treatment plants. Factory and (or) site assembled domestic wastewater treatment systems for over 50 GE. This Certificate shows that the biological reactors, type AT75; AT-100, AT-120, AT-150, AT-200, AT-250, produced by UAB “August ir Ko” meets the essential NTL-01-050:2008 requirements. This Certificate of Compliance provides a right to mark the production with certification mark PSZ-1 and is required for those who want to supply the equipment into the market.

TYPE	NUMBER OF REACTORS (psc)	DAILY LOAD WITH CONTAMINANTS (kg BOD_5)	DAILY FLOW (m^3/d)	SLUDGE PRODUCTION (m^3/year)	EL.ENERGY CONSUMPTION (kWh/d)	TECHNICAL PARAMETERS	
						H(mm)	A(mm)
AT-300	2	18	45	75	48	3000	4500
AT-400	2	24	60	100	66	3000	5000
AT-500	2	30	75	125	80	3000	5300
AT-600	3	36	90	150	99	3000	5000
AT-750	3	45	112,5	187,5	120	3000	5300

Closed Wastewater treatment plant AT-3000.

Population equivalent - 3000
Number of reactors – 2 biologocial lines;
Capacity of the plant – 450 m^3/d;
Object address – Damaskus (Syria).

TYPE	NUMBER OF REACTORS		DAILY LOAD (kg BOD_5)	DAILY FLOW (m^3/d)	SLUDGE PRODUCTION (kg/d)	EL.ENERGY CONSUMPTION (kWh/d)	TECHNICAL PARAMETERS		
	Min.	Max.					LENGTH (m)	WIDTH (m)	HEIGTH (m)
AT-1000	1	4	60	150	30	144	11	9	3,5
AT-1500	1	6	90	225	45	195	12	9	4
AT-2000	1	8	120	300	60	260	13	10	4
AT-2500	1	10	150	375	75	300	12	12	4,5
AT-3000	1	12	180	450	90	360	13	13	4,5
AT-3500	1	14	210	525	105	421	14	13	4,5
AT-4000	1	16	240	600	120	481	18	12	4,5
AT-4500	1	18	270	675	135	534	18	13	4,5
AT-5000	1	20	300	750	150	587	20	13	4,5

Open Wastewater treatment plant AT-5000.

Population equivalent - 5000.
Number of reactors – 2 biologocial lines;
Capacity of the plant – 610 m^3/d;
Object address – Maisiagala (Lithuania).

VFL technology biological wastewater treatment plants were installed and successfully exploited in the following countries:

Lithuania, Estonia, Germany, Latvia, France, Cyprus, Spain, Finland, G. Britain, Croatia, Russia, Bulgaria, Ireland, Belarus, Norway, Hungary, Sweden, Israel, Poland, Moldova, Czech Republic, Portugal, Ukraine, Columbia, Syria, Romania, Slovenia, Morocco, Slovakia

EN 12566-3+A1 TECHNOLOGY

EU Declaration of conformity

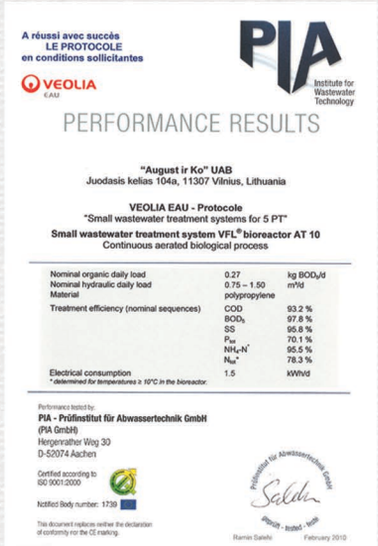
CERTIFICATE

for the management system according to ISO 9001:2008 and ISO 14001:2004 and BS OHSAS 18001:2007

August ir Ko, UAB
Juodasis Kelias 104A
LT-11307 Vilnius
Lithuania (Lietuva)

Scope
Selection, production, installation and maintenance of waste water treatment equipment. Designing of network utility systems: water supply, waste water removal; water intake buildings and waste water treatment.

Certificate Registration No.: TIC 15 100 75075, TIC 15 104 7416, TIC 15 116 10243
Valid until: 2016-10-31
Valid from: 2013-11-01
Audit Report No.: 3330 2B5P G0
Initial certification: 2007//2007//2010


PERFORMANCE RESULTS

"August ir Ko" UAB
Juodasis kelias 104a, 11307 Vilnius, Lithuania

VEOLIA EAU - Protocole
"Small wastewater treatment systems for 5 PT"

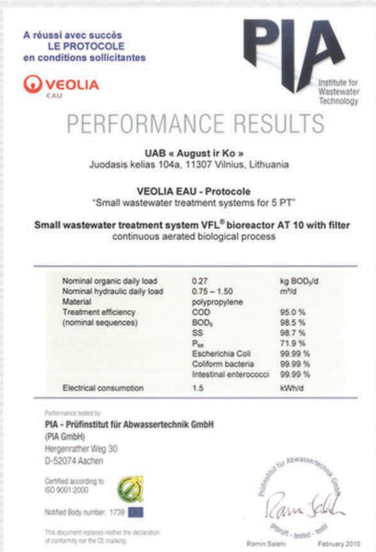
Small wastewater treatment system VFL® bioreactor AT 10
Continuous aerated biological process

Nominal organic daily load	0.27	kg BOD_5/d
Nominal hydraulic daily load	0.75 – 1.50	m³/d
Material	polypropylene	
Treatment efficiency (nominal sequences)	COD	93.2 %
	BOD_5	97.8 %
	SS	95.8 %
	P_{tot}	70.1 %
	NH_4-N'	95.5 %
	N_{tot}*	78.3 %
Electrical consumption	1.5	kWh/d

* determined for temperatures ≥ 10°C in the bioreactor.

Performance tested by:
PIA - Prüfinstitut für Abwassertechnik GmbH
(PIA GmbH)
Hergenrather Weg 30
D-52074 Aachen

Certified according to ISO 9001:2000
Notified Body number: 1739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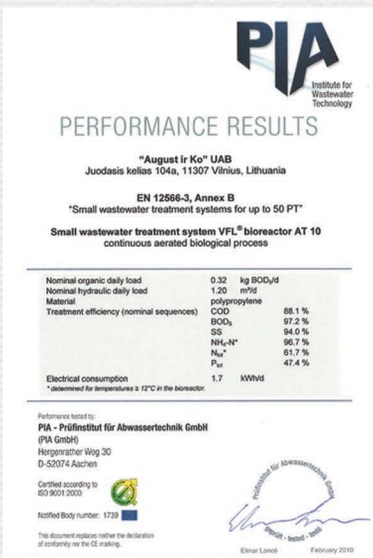
	SS	98.7 %
	P_{tot}	71.9 %
	Escherichia Coli	99.99 %
	Coliform bacteria	99.99 %
	Intestinal enterococci	99.99 %
Electrical consumption	1.5	kWh/d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	P_{tot}	47.4 %
Electrical consumption	1.7	kWh/d

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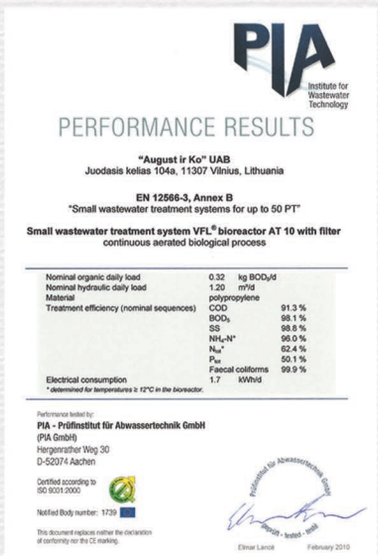
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	N_{tot}*	62.4 %
	P_{tot}	50.1 %
	Faecal coliforms	99.9 %
Electrical consumption	1.7	kWh/d

* determined for temperatures ≥ 12°C in the bioreactor.

PRODUCT CERTIFICATE
No. 00005/TSUS/Y/2013
of 15 February 2013

Product: Small wastewater treatment plant AT
Manufacturer: AUGUST IR KO, Juodasis kelias 104A, LT-11307 Vilnius, Lithuania
Manufacturing plant: AUGUST IR KO, Juodasis kelias 104A, LT-11307 Vilnius, Lithuania

Teknisk Godkjenning

SINTEF Certification
Nr. 20118

РОССИЙСКАЯ ФЕДЕРАЦИЯ
СЕРТИФИКАТ СООТВЕТСТВИЯ

Manufacturer:
UAB„August ir Ko"
Juodasis kelias str. 104A,
LT-11307 Vilnius, Lithuania

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