



## How clean is the purified wastewater from a BioKube? BioKube test results.

BioKube develops, manufactures and sells systems for biological cleaning of sewage water. BioKube AWTS (**A**erated **W**astewater **T**reatment **S**ystems) are based on a technology using submerged aerated filters. BioKube has enhanced this basic well documented technology with several international patents.

The main scope of these patents are to ensure that BioKube systems will clean sewage water with outstanding regularity regardless of factors like variations in the daily amount of incoming sewage water (situations like a large number of guests) or long periods with no sewage water (i.e. situations like a long vacation and consequently no sewage water being produced) or very hot and cold temperatures (BioKube systems work both in the desert in Kuwait and in the below freezing temperatures in Scandinavia).

BioKube AWTS are certified to fulfill the highest norms in EU regarding treatment of sewage water. This norm is CEN 12566-3. The norm is a harmonized EU standard, see EU Journal C/2005 319/01. You will find both these documents on our website [www.biokube.com](http://www.biokube.com).

See page 2 – 4 shows BioKubes Declaration of EU compliance under EU Standard 12566-3 and BioKubes independently audited test results of fulfilling the required outlet values.

BioKube is certified to clean sewage water better than the following specifications regarding the maximum outlet values:

BOD5 < 10 mg/ltr.

NH<sub>4</sub> < 5 mg/ltr.

COD < 75 mg/ltr.

P < 1,5 mg/ml

E-coli < 500 pr100 ml

SS < 20 mg/ltr



BioKube 20' container system installed at an oil installation in the desert in the Middle East.

The picture also illustrates that a BioKube will work even if it is extremely hot.

A BioKube will also function without problems at temperatures below freezing.



Biokube  
Att. Peter Hedegaard  
Åsidevej 1  
4733 Tappernøje

Deres ref.:  
ETA-DK

Vor ref.:  
PF

Dato:  
2005-11-15

**Regarding: Declaration of EU Compliance.**

This letter is drawn up to confirm, that BioKube Wastewater Treatment plants are certified and approved in Denmark in accordance to the specifications contained in the Danish Government Notice no. 500 of 21/6 1999 "Bekendtgørelse om typegodkendelsesordning for minirenselanlæg" (notice regarding certification of wastewater treatment plants).

The test procedure in Denmark is in accordance with the procedure described in EU prEN 12566 - Part 3: "Small Wastewater Treatment Systems for up to 50 PT – Part 3: Package and/or site assembled domestic wastewater treatment plants".

The maximum outlet values allowed for approval in Denmark – which the BioKube Wastewater Treatment plants are certified to fulfil - are:

BOD<sub>5</sub> (mod.) (mg/l) : 10

NH<sub>3</sub>+NH<sub>4</sub>-N (mg/l) : 5

Total-P (mg/l): 1,5

Med venlig hilsen  
ETA-Danmark A/S

  
Peter Fritzel

# How clean is Water from a BioKube?

Monthly measurements by independent certified institute.

These measurements document the stability of the BioKube cleaning process.

<b>Requirements:</b>	<b>NH<sub>4</sub></b> <b>5 mg/l</b>	<b>BOD<sub>5</sub></b> <b>10 mg/l</b>	<b>COD</b> <b>75 mg/l</b>	<b>SS</b> <b>mg/l</b>	<b>pH</b>	<b>Water Temp</b> <b>C°</b>	<b>O<sub>2</sub> %</b>
<b>Date:</b>							
10-08-2004	<0,05	4,4	32,6	8,6	7,3	19,2	85,0
31-08-2004	<0,05	2,1	28,8	7,3	7,4	17,3	110,4
27-09-2004	<0,05	4,6	32,3	9,5	7,2	16,2	107,0
27-10-2004	2,14	6,5	49,6	7,4	7,3	13,4	103,2
25-11-2004	<0,05	1,8	23,4	9,5	7,0	9,8	105,9
27-12-2004	1,04	2,2	30,4	4,7	7,6	7,3	95,5
28-01-2005	0,04	1,5	33,0	1,5	7,8	5,9	88,2
25-02-2005	0,05	1,7	29,0	1,9	7,9	4,7	56,8
26-03-2005	0,17	4,3	34,6	7,6	7,2	6,4	108,8
13-04-2005	0,82	6,7	49,0	6,6	7,6	8,0	52,1
17-05-2005	0,21	4,5	38,0	18,0	7,8	11,1	52,1
16-06-2005	0,10	5,0	38,0	9,9	7,7	14,3	54,2
08-07-2005	5,20	2,6	42,0	4,3	6,4	16,2	52,4
10-08-2005	0,21	3,8	47,0	7,6	7,1	16,2	54,3
09-09-2005	12,00	4,6	42,0	15,0	6,3	17,0	56,7
04-10-2005	1,20	3,5	45,0	7,1	6,9	13,8	52,5
25-10-2005	0,82	4,4	35,0	16,0	7,4	12,9	52,4
25-11-2005	2,60	8,4	61,0	13,0	7,0	9,1	52,1
21-12-2005	0,11	4,1	51,0	5,1	7,5	7,8	52,1
23-02-2006	7,70	3,2	37,0	15,0	7,6	4,8	52,0
11-04-2006	1,10	5,8	44,0	19,0	7,7	7,1	91,0
25-05-2006	0,03	2,7	40,0	8,0	7,7	11,9	93,0
15-06-2006	0,61	2,2	30,0	8,7	7,1	16,0	72,0
06-07-2006	1,50	0,9	17,0	7,3	7,8	15,9	72,0
07-08-2006	0,34	4,6	31,0	10,0	7,9	17,7	93,0
06-09-2006	0,10	2,1	41,0	6,3	8,3	17,3	92,0
02-10-2006	0,65	3,1	40,0	13,0	7,9	16,1	90,0
24-10-2006	0,06	4,3	67,0	16,0	8,0	14,8	90,0
23-11-2006	0,07	2,2	29,0	5,4	7,7	11,1	92,0
19-12-2006	0,10	1,7	34,0	2,2	8,2	10,8	78,0

# BioKube measurements are certified and audited.

Eurofins Danmark A/S  
Smedeskovvej 38  
8464 Galten  
Phone : 7022 4266  
VAT: DK-2884 8196



Skibby Kommune  
Teknisk Forvaltning  
Røgerupvej 4  
4050 Skibby

Registro.: 573638/Rev.2  
Client no.: 611513  
Order no.: 426526

Recievedate: 2006.11.24

## TEST REPORT

Page: 1 of 1

Client.....: Skibby Kommune, Teknisk Forvaltning  
Røgerupvej 4, 4050 Skibby  
Sampling location: **Onsved Renseanlæg spildevand - U020010/12290010**  
Sample type.....: Waste water  
Sampling.....: 2006.11.23 kl. 07:00 - 2006.11.24 kl. 07:00  
Sampler.....: Rovesta Miljø I/S for Eurofins Danmark A/S (XNL)  
Customer inform.:  
Test period.....: 2006.11.24 - 2007.02.16

Sample description:	Sample no.: 25293386 25293387		Units	Required val.** Detect.		Methods	RSD (%)
	In	Out		Min.	Max. limit		
Sediment following 2 hours	21	<0.10	ml/l		0.10	DS 233	5
pH	7.8	8.2	pH			DS 287	
Suspended matter	530	5.4	mg/l		1.0	DS 207	10
Ammonia+ammonium-N	44	0.067	mg/l		0.0050	DS/EN ISO 11732	10
Total-N	88	26	mg/l		0.05	DS 221	5
Total-P	20	1.9	mg/l		0.005	DS 292	5
BOD, modified	350	2.2	mg/l		0.5	DS/EN 1899-1	5
COD, chemical oxygen demand	1100		mg/l		20	ISO15705/LC400	5
COD, chemical oxygen demand		29	mg/l		5.0	ISO15705/LC500	5

### Information by the sampler:

Sampling method	Time.prp	Time.prp	
Precipitation	2.0	2.0	mm
Prøvetagningsudstyr	Andet	Andet	
Water temperature		11.1	gr. C
Oxygen saturation		92	%
pH (målt i felten)		7.7	pH

### Copy of report sent to:

- Frederiksborg Amt, Teknisk Forvaltning/miljøafd., Kongens Vænge 2, 3400 Hillerød
- Hyllingeriis Renseanlæg, Hyllingeriis 256, østby, 4050 Skibby
- Biokube, Center Vej Syd 5, 4733 Tappernøje

\*) Not included in the accreditation.

\*\*\*) Virksomhedens miljøgodkendelse / udledningstilladelse.

### Legend:

RSD : Relative Standard Deviation.  
< : less than. n.d.: not detected.  
> : greater than. n.m.: non-measurable.  
# : none of the parameters detected.

Bente Michelsen  
Contact

16 February 2007

Jes Leisgaard Poulsen  
Quality assurance

The test results relate only to the items tested.

The report shall not be reproduced except in full without the written approval of the testing laboratory.