



**Initial type test “treatment efficiency” in accordance with
EN12566-3+A2
Small wastewater treatment systems for up to 50 PT – Part 3:
Packaged and/or site assembled domestic wastewater treatment
plants.**

Range/model “Pluto”

Of BioKube

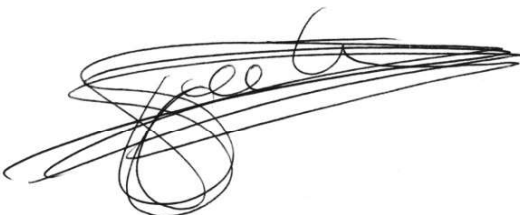
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Nom rapporteur	Signature	Date
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1 Introduction

This document is the initial type test report for the “treatment efficiency”-test according to standard EN12566-3+A2 for a range of small wastewater treatment systems developed by BioKube, more specifically, for the model Pluto 5PT.

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Certipro is Notified Body N° 1476 to conduct conformity assessment for small wastewater treatment systems under the Construction Products Regulation (N° 305/2011).

The average characteristics of input effluent during the test:

- BOD: 338 mgO₂/l
- SS: 305 mg/l
- NH₄-N: 64 mgN/l
- P_T: 10.9 mgP/l
- Kj-N: 85.5 mg N/l

The organic nominal daily load was 263 gBOD/day during the test.

Note: All the samples (raw wastewater, pre-treated wastewater and effluent) were analysed under BELAC accreditation. BELAC is the accreditation body for Belgium and Belgian member of EA (European Accreditation).

Abnormalities and deviations during test procedure

27/03/2105 flocculants dosing unit was started.

13/08/2105 : reparation by manufacturer : according to the manufacturer, the P-removal was insufficient due to malfunction of the dosing pump. This pump was replaced with new pump (same model). The flocculants reservoir was also re-supplied.

16/01/2016 : Sludge was removed from pre-settlement-tank.

4.4.1 Evaluation of the results

All chemical analysis were done under BELAC accreditation. BELAC is the Belgian accreditation body and member of EA (European Accreditation).

According to the manufacturer, the P-removal was insufficient due to malfunction of the dosing pump during sequences 2 up to 4 (and 5), therefore these sequences were re-done at the end of the normal test-schedule. Treatment efficiency is calculated for the sequences where the working of the dosing unit was not compromised.

The treatment performance of the BioKube Pluto (5 PE) was established by means of a sampling test consisting of 20 mixed samples taken (24 h) spread during the sequences with nominal load (5 PT) for the sequences 2bis, 3bis, 4bis and sequences 5 up to 10.

Note : N_{tot} values for the influent (raw wastewater) are calculated values based upon the assumptions : N_{TOT} = K_j-N + NO₂ + NO₃ and the assumption that NO₂ and NO₃ are not present in the raw wastewater (influent). Therefore, the N_{TOT}-values of the influent and the calculated efficiency for N_{tot} in this testreport are not included in the scope of Accreditation and Notification.

pH = 7,2
 SS_{nom average} = 8,0 mg/l
 Settleable solids_{nom average} ≤ 0,1 ml/l
 NH₄-N_{nom average} = 19,3 mg/l N
 NO₂ _{nom average} = 0,4 mg/l N
 NO₃ _{nom average} = 25,6 mg/l N
 P _{nom average} = 0,5 mg/l P
 KJ-N _{nom average} = 20,7 mg/l N
 BOD_{nom average} = 4,5 mg/l O₂
 COD_{nom average} = 35,2 mg/l O₂
 N_{tot} _{nom average} = 46,6 mgN/l

The average of removal percentages obtain during the periods with nominal load are:

BOD_{red%} = 98,7 %
 COD_{red%} = 95,2 %
 SS_{red%} = 97,4 %
 NH₄-N_{red%} = 70,8 %
 P _{red%} = 95,1 %
 N_{TOT} _{red%} = 46,0 %