European Market for Decentralized Waste Water Systems

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PIA - Testing Institute for Wastewater Technology

- Testing of small wastewater treatment systems according to international standards
- Testing of ship wastewater treatment systems
- Testing of greywater treatment systems
- Testing of wetlands
- Testing of wastewater pumping stations
- Testing of septic tanks
- Testing and calibration of flow measurement systems
- Consulting and information concerning CE-Marking of wastewater products

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SWWS 2016
Small Wastewater Treatment Systems

Aerated sludge reactor
Fixed film reactor
Moving bed reactor
SBR
Trickling filter
Membrane bioreactor
Constructed wetland

Construction Products
The primary purpose of the Construction Products Regulation is to break down technical barriers to trade in order to ensure the free movement of construction products across Member States within the European Union.

BASIC REQUIREMENTS FOR CONSTRUCTION WORKS

1. Mechanical resistance and stability
2. Safety in case of fire
3. Hygiene, health and the environment
4. Safety and accessibility in use
5. Protection against noise
6. Energy economy and heat retention
7. Sustainable use of natural resources
EN 12566
Small wastewater treatment systems for up to 50 PT

- **EN 12566-1+A1:** Prefabricated septic tanks
- **CEN/TS 12566-2:** Soil infiltration systems
- **EN 12566-3+A2:** Packaged and/or site assembled domestic wastewater treatments plants
- **EN 12566-4:** Septic tanks built in situ from prefabricated septic tanks
- **CEN/TS 12566-5:** Pre-treated effluent filtration systems
- **EN 12566-6:** Prefabricated treatment units used for septic tank effluent
- **EN 12566-7:** Prefabricated tertiary treatment units
Tests

• Treatment Efficiency  (EN 12566-3 Annex B)

• Watertightness   (EN 12566-3 Annex A)

• Structural behaviour  (EN 12566-3 Annex C)

• Durability    (EN 12566-3 chapter 6.5)

• Reaction to fire  (EN 12566-3 chapter 6.6)

• Dangerous substances  (EN 12566-3 6.8)
## Treatment efficiency

### Table: Sequences and Time Measurements

<table>
<thead>
<tr>
<th>Sequences</th>
<th>Time</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomass establishment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal 100 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underloading 50 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal 100 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power breakdown (24 h)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low occupation stress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal 100 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal 100 % and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overloading (48 h)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal 100 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power breakdown (24 h)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underloading 50 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal 100 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>38 + X</td>
<td></td>
</tr>
</tbody>
</table>

### Chart: Flow Over Time

- **Over loading**
- **Under loading**
- **Nominal**

- **Peak flow**: 3 x 200 l in 3 min.

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SWWS 2016
Watertightness test

“The plant shall be watertight up to the height declared by the manufacturer; the minimum declared height shall be the top of the tank.”
Structural behaviour

“The plants shall resist the loads and stresses resulting from handling, installation and use, including desludging and maintenance, for their design life.”
Structural behaviour
Structural behaviour
Structural behaviour
Structural behaviour
Durability

“Plants including all internal components shall be manufactured from materials that make them suitable for use in a wastewater environment.”
Reaction to fire

“Concerning their reaction to fire, construction products are classified according EN 13502-1:2012. A practical test of the ignitability of products subjected to direct impingement of flame proves e.g. the classification of the construction products according to EN ISO 11925.“
“National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets. In the absence of European harmonised test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.”
### EU directive 93/68/EWG

### Name/Address of manufacturer

### Year of CE marking

### EN 12566-1, -3 oder -4

### Product - Information

<table>
<thead>
<tr>
<th><strong>Treatment efficiency</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensioning</strong></td>
</tr>
<tr>
<td><strong>Water tightness</strong></td>
</tr>
<tr>
<td><strong>Structural behaviour</strong></td>
</tr>
<tr>
<td><strong>Durability</strong></td>
</tr>
<tr>
<td><strong>Reaction to fire, dangerous substances</strong></td>
</tr>
</tbody>
</table>

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### EN 12566-3

Vorgefertigte Kläranlage zur Behandlung von häuslichem Schmutzwasser

- Referenznummer des Produktes: „BWV 714“
- Material: BETON

#### Wirksamkeit der Behandlung:

<table>
<thead>
<tr>
<th>Wirkungsgrad der Reinigungsleistung (bei einer geprüften organischen Tagesschmutzfachracht BSB₅):</th>
<th>CSB: 80 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>---------------------------------------------------------------------------------------------------</td>
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<td>---------------------------------------------------------------------------------------------------</td>
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</tr>
</tbody>
</table>

#### Reinigungskapazität (nominale Bemessung):

<table>
<thead>
<tr>
<th>Nominale organische Tagesschmutzfachracht (BSB₅):</th>
<th>1,2 %/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominaler Tageszufluss (Qₖ):</td>
<td>3 m³/d</td>
</tr>
</tbody>
</table>

#### Wasserdichtheit: (Prüfung mit Wasser)

- Bestanden

#### Standsicherheit: (Grubenprüfung)

- Höhe der Erdüberdeckung: 0,5 m
- WET: 1,20 m

#### Dauerhaftigkeit

- Bestanden

#### Brandverhalten

- A1

#### Freisetzung gefährlicher Stoffe

- NPD
National requirements

Ireland: S.R. 66, includes requirements relating to scaling parameters, sludge storage capacities and effluent qualities

France: Protocole general pour la reconnaissance de gamme dans le cadre de la procedure d'agrement ministeriel des dispositifs d'epuration ayant une capacite inferieure ou egale, includes requirements relating to scaling parameters, effluent qualities and additional practical tests

Germany: Bauaufsichtliche Zulassung (DIBt) now obsolete, prospective Wasserrechtliche Zulassung
Questions?

Just ask me please 😊