HARSONIC®

biofilm control without chemicals for the agriculture and livestock industry

Animal Health Innovation Winner at Eurotier 2017
About **biofilm**

Biofilm, a group of micro organisms, commonly observed as a slimy layer, occurs anywhere water accumulates, and causes many problems for professional breeders:
- Clogged pipes and drinking nipples.
- Development of pathogen bacteria.
- Reduction of the effectiveness of medicines which are mostly administered via the drinking water.
- Leaking drinking nipples which causes wet stable floors.

Most biofilm related bacteria are extremely difficult to eradicate with conventional chemical and mechanical methods and require constant attention to avoid infections. This biofilm protects the present bacteria and can produce harmful toxines. **Salmonella** is capable to develop a biofilm under several circumstances, as well in biotic as in abiotic surfaces. This biofilm protects these bad bacteria against disinfectants and antibiotics. **Salmonella** infection can be avoided by preventing the formation of biofilm.

**Resistant biofilm**

Using chemicals to clean the pipes is not without risk, as the toxic residu for can be harmful for the animals or crops. Moreover, the constant usage of chemicals can make biofilm resistant. With frequent usage and treatments, biofilm can become up to 500 times more resistant to chlorine.

This resistant biofilm can’t be removed with the conventional methods, and can remain a habitat for certain tenacious germ strains. Chemicals will have no impact on them, especially in small gaps, where the most harmful and resistant bacteria such as e-coli or enterococci reside.

**Fact:** *none of the conventional cleaning methods are really effective against resistant biofilm*
A very **high level of hygiene** in drinking and irrigation lines is required to keep live stock and crops **disease free**. Most **biofilm** related bacteria are extremely difficult to eradicate with conventional chemical and mechanical methods and require constant attention to avoid infections.
HARSONIC® is an ultrasound system based on very soft cavitation that doesn’t damage any materials even after long term use, unlike other systems based on hard cavitation. By bringing the walls and liquid in resonance the biofilm is removed and any further attachment of micro organisms is prevented.

NOW THERE IS A SUSTAINABLE SOLUTION THAT PREVENTS BIOFILM WITHOUT CHEMICALS
HARSONIC® ultrasound biofilm control system

- is suitable for all water and other liquid nutrient transportation lines
- avoids the attachment of biofilm
- reaches every gap that any other mechanical cleaning method can’t reach
- is very easy to install and to maintain
- reduces or even totally avoids the usage of chemicals and antibiotics
- has a very low energy consumption
- has a continuous cleaning effect
- requires a very low investment
HARSONIC®
ULTRASOUND
BIOFILM CONTROL

How does it work?
HARSONIC® is a biofilm control system in which ultrasonic vibrations are spread by transducers into a liquid. By breaking the vacuole of algae, these vibrations prevent microorganisms to attach to the walls and to form biofilm. Ultrasonic vibrations can cover very long distances. The effectiveness of the vibrations is reinforced by the system’s patented HS-Technology, which makes it the only solution against resistant biofilm.

⇒ reduced usage of antibiotics
⇒ improved disease control
⇒ better daily growth rates
⇒ robust health - better uniformity
⇒ strongly reduced mortality

The only effective solution against resistant biofilm
The HARSONIC® technology was developed in Belgium, and originated in the marine industry for defouling ship hulls, boxcoolers etc. Being very successful in that industry, HARSONIC® developed further applications for several other industries where biofilm is a serious problem, which is about every industry that uses water of any kind. Together with the biofilm, every other fouling that attaches to the biofilm is also avoided, such as limescale, rust...

Numerous tests being done in Belgian as well as in foreign universities did not only prove its effectiveness, it also proved that HARSONIC® doesn’t have any impact on living creatures, nor does it influence any electronic devices.

System features and benefits
- removes biofilm permanently without chemicals
- very low investment
- very easy to install
- needs little or no maintenance
- extremely low electrical consumption
- cost savings on cleaning products and labor
- improves the effect of cleaning/disinfecting agents
- ultrasound vibration reaches every gap or fold
- standard with a 5 year warranty

<table>
<thead>
<tr>
<th>CONTROL UNIT (CU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
</tr>
<tr>
<td>Transducers / CU</td>
</tr>
<tr>
<td>Power supply CU</td>
</tr>
<tr>
<td>Power supply inlet</td>
</tr>
<tr>
<td>Power consumption</td>
</tr>
<tr>
<td>to be mounted in an IP67 electrical cabinet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRANSDUCTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter (for pipes)</td>
</tr>
<tr>
<td>Diameter (for tanks)</td>
</tr>
<tr>
<td>Height</td>
</tr>
<tr>
<td>Protection index</td>
</tr>
<tr>
<td>Temperature range</td>
</tr>
</tbody>
</table>

HARSONIC® meets the following standards
- RoHS-directive 2002/98/EC
- EMC-directive 2004/108/EC
- acc. test report FMEC/EMC/1306/53
- LVD-directive 20006/98/EG
ABOUT US

We firmly believe “going green” is not just an option, but the only way to move forward in an ever deteriorating world. The human is the only species that willingly and knowingly destroys its own habitat, as if it can be thrown away and it simply can move to another planet. Nowadays, Clean technology has come to such a level of maturity, that it became the best economical solution. If every industry in the world would take in all the energy they need at the same point of time, not enough energy can be generated from fossil combustibles to supply all of it. Let alone in 20 years from now.

www.harsonic.com  info@harsonic.com

distributor for HARSONIC®

this brochure is printed on 100% recycled paper