

**TITLE**

**CHARACTERIZATION OF DEPOSITS IN DRINKING WATER PIPES IN PIGLET NURSERIES**

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**CONTENT**

**Background and Objectives:**

Providing sufficient quantities of water of adequate quality is critical to welfare, health and performance of swine. The farmer himself is responsible for ensuring that drinking water is suitable for the animals in accordance with legislation and that technical installations are designed to minimize contamination of water. So far, there is no guidance for risk assessment for the strong chemical deposits and biofilms in drinking water installations on farms, although biofilms can cause a bad taste of drinking water and might be a reservoir for pathogens.

**Materials and Methods:**

Deposits in drinking water installations in 15 piglet rearing farms were sampled and characterized for their physical, chemical and microbiological composition. Different cleaning concepts were tested under laboratory conditions on the respective pipes containing farm-specific deposits. Based on results from analysis of deposits from the first five farms, a practical approach for a risk assessment on farms was elaborated and tested on ten farms. Deposits were classified visually, with respect to their inorganic proportion and by cultural microbiological methods.

**Results:**

No respiratory pathogens were detectable in biofilms from water pipes, while *Escherichia coli* and *Salmonella enterica* (predominantly *S. Typhimurium* var. Copenhagen) were found in a number of biofilms. Cleaning concepts based on alternating applications of basic and acid cleaning substances combined with mechanical flow impulses were successful to remove most of the dominated deposits.

**Discussion and Conclusion:**

Chemical deposits and biofilms are farm-specific with a high variation between farms depending on water origin, pipe installation, dosage of substances by water, technical devices and operation. Detected microorganisms belonged to an unspecific ubiquitous and commensal microflora and might be of minor importance for the health status of pigs. If a high load of *E.coli* in pipes in nursery systems or *Salmonella* are detectable, a cleaning procedure might be recommendable.