

Project Executive Summary

PROJECT TITLE

Microbial evaluation of water samples collected from caravans and motorhomes before and after using the Floë water drainage system.

PROBLEM DESCRIPTION

The University of Ulster was commissioned by APT Innovations Limited to seek answer to the following questions regarding water quality in touring caravans and motorhomes:

1. **Why does the water from the taps inside the vehicle taste unpleasant, even though fresh water has been introduced and flushed through the water system?**
2. **Why does water collected from the water system using Floë often look discoloured and contain suspended particles?**
3. **How effective is Floë at removing the water and any impurities from the water system?**

INVESTIGATION

Water samples were collected from different caravans and compared to a control water sample collected from a local fresh water tap.

Methods of investigation included; microbial counts using selective media plating techniques, direct microscopic wet examination of concentrated (centrifuged) water samples.

RESULTS

Stale water samples in caravans not in use for several weeks contained significant microbial counts and debris fragments of microbial biofilms (a biological coating on the inside of the pipes).

Once the Floë system purging was carried out either before or after water flushing, subsequent samples showed no biofilms-debris presence and significantly reduced microbial counts (greater than 99.9% reduction)

CONCLUDING REMARKS

Microbial counts in the water system of caravans which have not been in active use for some time may contain significant microbial load. This can represent a health hazard for drinking, washing fresh fruits and vegetables, brushing teeth or simply washing. Higher summer temperatures and longer inactive duration can also increase microbial presence/activity. The full removal of stagnant water is therefore advisable.

In answer to the questions posed by APT Innovations above:

1. Water can get trapped in certain areas of water systems over time stagnating and leading to the likelihood of increased microbial presence and biofilms formation which can contribute to the detected bad taste or scent in water. Simple water flushing dilutes the problem gradually and may not remove biofilms therefore taking a longer time to get rid of detected off taste or scent.
2. Water discoloration and the presence of suspended matter are due to microbial products and/or disrupted or dislodged biofilms or debris.
3. The application of a complete purging plan using the Floë system removes stagnant water and debris. It also decreases microbial counts >99.9%, which would be of great benefit to users.