Snapshot Report



UV-C System Installation

Project code 2022-1165

Prepared by Dr Michelle Henry Date submitted 24/4/2025

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Project description

This project was undertaken to determine whether the application of UV light and ozone within carcase chillers can reduce fungal structures within the air to improve shelf life of product and human health. Additionally, UV light was installed to directly treat hot carcases to determine whether total viable count would decrease as a result. The results showed no measurable different in fungal structures found in the air when UV and ozone was installed in the carcase chillers. The installation of the UV unit to directly sterilise carcases showed a measurable decrease in total viable count.

Project content

This project was undertaken by firstly raising awareness to create idea generation for the business to review. A design was then developed and installation occurred. A range of safety concerns were identified throughout the installation phase of the project resulting in guarding being installed to ensure no worker was exposed to UV light within different areas of the plant. Baseline results were determine in the air samples and carcase swab, before turning the installations on with further samples taken over 27 sampling dates with in the chillers, and a four week period for direct hot carcase exposure to UV light.

Project outcomes

The project outcomes are given below for the air purification and direct hot carcase exposure to UV light.

- Air purification using UV light and ozone showed no measurable different in fungal structures when comparing the baseline results to the results after UV and ozone was turned on. It is recommended that further investigation is undertaken to determine whether the installation of large UV and ozone unit would measurably reduce fungal structures within the air, and the flow on effect this may have on product shelf life and human health.
- 2. Hot carcase purification using UV light was found to have a measurable reduction in total viable count. This was a pleasing result that was found to increase shelf like by 8 to 10 days, when simulated using the University of Tasmania Shelf Life Prediction Tool. Further work is required to continue validating these results and investigate whether this can be improved further.

Benefit for industry

The use of UV light directly on hot carcases can result in a reduction in total viable count, removing any carcases that may usually have a higher than normal result. The flow on effect is an increase in shelf life days for product. The use of UV and ozone to purify air within carcase chillers was not found to reduce fungal structures in the air, however, further investigation is required to determine whether the installation of a larger unit would improve these results.