

Guild of Cleaners and Launderers

Project - Hygiene and Check on Evidence of Cross Contamination in Low Temperature Processing

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Project Leader and part funder



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GUILD OF CLEANERS AND LAUNDERERS

56 Maple Drive,
Larkhall, South Lanarkshire,
ML9 2AR

Phone: 01698 322669
E-mail: enquiries@gcl.org.uk

BBC Four TV ran two separate documentary programmes in 2017 and 2018 showing how the influenza bug killed more people following World War 1 in the world than had been killed during the war itself. They also speculated that a future epidemic or pandemic was, perhaps, inevitable.

Following requests from the industry, The Guild was asked to investigate hygiene in low temperature processing and, after due consideration, the Guild Council decided to approach Northumbria University with a view to commissioning them to investigate the issue. Northumbria was asked to undertake the project as they had current experience in this field and after consultation with The Guild, were confident of the benefits the research could bring in terms of investigating any possible risks to public health throughout the industrial, commercial, retail and domestic sectors of our industry.

The breadth and scope of the project was heavily constrained by the very limited funding available. Unfortunately, some promises at the outset, of donations and support for the project, did not materialise, leaving The Guild and The Worshipful Company of Launderers as the main financial contributors.

The Guild are indebted to those industry suppliers and businesses who gave us their wholehearted practical support without which the project may not have got off the ground.

The project commenced in 2018 and after 11 months of laboratory testing and shop floor trials, The Guild received the report from Northumbria University in November and a summary of its results are as follows.

1. Sample fabrics were contaminated with a range of microorganisms and stored before testing. Five days later tests proved these microorganisms had survived storage therefore had a long life on textile fibres following contamination.

2. Contaminated test pieces made from wool, cotton and polyester were then test washed under laboratory conditions in a wash process of 12 minutes at 30°C and two rinses at ambient temperatures, one of 5 minutes and one of two minutes. The wool sample was processed in a detergent suitable for wool and the cotton and polyester test pieces were washed with a separate detergent suitable for those types of fibre.

2a). Following the process the fabric swatches were then tested for the survival of the microorganisms and it was found that all had survived.

2b). For a comparison purpose test the Northumbria University did a further wash test on other sample fabric test swatches but this time without a detergent but using the same temperature and times. Here again the microorganisms, not unexpectedly, survived the process.

3. In a third wash test, but just for cotton and polyester fabric swatches, a bactericide was added. The same process time and temperatures were used but this time following the process the samples were free of bacteria. The wool fabric was not tested with the addition of a bactericide.

4. In a field trial at a dry cleaner, in the North East of England, using the solvent perchloroethylene the Northumbria University test team found that no microbial growth was found inside the polythene garment covers. No micro-

bial growth was found inside of the dry cleaning machine drum, or in the solvent waste (It is thought that this was probably due to the toxicity of the Tetrachlorethylene solvent (Perc) to microorganisms. All sterile swatches, no matter what material type tested on, remained sterile after being dry cleaned.

From direct swabbing the front reception desk had the highest count of microorganisms, as expected, due to its increased contact with people and soiled garments.

5. Due to the projects financial constraints no other dry cleaning solvent user's establishments were involved in any trials or tests.

Comment

The Report showed that microorganisms, in the absence of a bleach or a bactericide, can not only survive low temperature processing but can remain relatively unaffected. This does of course raise concerns for the industry as a whole, as in the event of an epidemic or pandemic the process of textile cleansing could prove to be a factor in the spread of infection, rather than a service to help with hygiene standards. However, the study did not reveal any evidence of cross infection but this could still be an ongoing risk arising from particular low temperature processing and storage conditions.

While the investigation only looked at the mechanics of cleansing, the majority of textiles do undergo some form of finishing process which at one end of the spectrum eg. calendaring, may ensure a hygienic product. However **not all items are finished** and in many cases only a limited process is applied such as automated finishing on garment formers where the timings, temperature and distribution of steam and heat can be extremely variable and therefore overall thermal disinfection cannot be expected.

Of particular concern is the cleansing of Health Service staff uniforms, (many of which are now processed within a domestic environment in the UK), high street processing of personal wear and laundry, and O.P.L.'s within the Care Homes sector which may be uncontrolled and could therefore possibly present an infection/cross infection risk.

The incorporation of a bactericide or PAP Peroxy bleach in the cleansing process might well ensure good disinfection in low temperature processing but this addition must not as a result affect the fibres and fabrics other than cleansing and hygiene. However, in the absence of legislative controls to ensure their use, either in the manufacture of low temperature detergents or in processing, disinfection hygiene will remain at best uncertain.