Decontamination

Substantial increases in the occurrence of food poisoning outbreaks and commercial requirements to extend the safe, high quality shelf-life of food have focused attention on decontamination systems. At frperc we have conducted an extensive literature review on decontamination and written a number of books, papers and articles on the subject. frperc has also undertaken a wide ranging programme of decontamination research.

Raw food products such as freshly slaughtered animals and harvested fruits and vegetables are subject to physical (soil etc.) and microbial contamination that must be removed during processing. This needs to be carried out in such a way that it does not change the intrinsic nature of the food, i.e. the raw produce or meat must remain raw. Such processes are usually referred to as decontamination, minimal processing, or surface pasteurisation (in the case of heat treatments).

Cross contamination of other surfaces, equipment and personnel that the food comes into contact with results in the need for a wide range of different decontamination treatments.

The removal of physical and microbial contamination can be undertaken using many different treatments such as:

Pressurised steam - very high rates of temperature rise at the surface of samples can be achieved by condensing steam under pressure, surface cooking can be avoided by immediately vacuum cooling after treatment.

Atmospheric steam - the same principle as pressurised steam but cheaper and more easy to automate.

Sub atmospheric steam - with heat sensitive foods decontamination may have to be carried out a temperatures lower than 100°C.

Microwaves - microwave heating can produce very rapid increases in surface temperature and therefore has the potential to decontaminate foods.

Ultra violet light

Ozone - the use of both water soluble and gaseous ozone

Immersion

Hot air

Ultra-violet light

Organic acids

How frperc can help

frperc have investigated many aspects of decontamination including abattoirs, production areas (such as lairages), hygienic design of cutting and handling systems, foods such as chicken or herbs and the development of hand washing systems for personnel.

We have conducted wide ranging trials using all of the methods listed above. Tuneable treatments are possible in our experimental and prototype rigs. We have conducted decontamination trials for many different foodstuffs and are well placed to rapidly determine appropriate processes for your needs.

To discuss any aspects of decontamination or any contamination problems, please contact us on +44 (0)1472 582400 or email us on frperc@grimsby.ac.uk