

# The global cost of cleaning and implications for the environment

One of the biggest talking points in the meat industry currently is the total cost of cleaning. This refers to the costs involved not only in the chemicals, but the time, water and energy too.

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In order to remain competitive, it is crucial for meat producers and processors to manage these costs as well as taking into consideration their burden on the environment. Not a mean feat when you consider the stringent health and safety regulations and the increasing influence of sustainability issues.

Cleaning in general in the meat industry is pretty straightforward. But, if the hygiene regimes employed are below standard, then this will have a bearing on product quality as well as on the bottom line.

So, it is the methodology that is crucial here and that affects both time taken to clean, amount of water and energy used as well as the quantity and type of chemicals and detergents.

Different types of meat and meat products require different approaches when it comes to cleaning. Pork is generally the easiest to deal with, whereas beef and lamb

## Cleaning of polypropylene cutting boards.



detritus and lamb fat, is the hardest to remove and requires higher water temperatures, and thus increased amounts of energy to achieve high temperatures. The hotter the water and the longer the pre-rinse, the higher the costs.

A combination of methodology and chemistry is required to best tackle these issues where resources and chemical optimisation and process improvement lead to achieving both financial and environmental benefits.

Both the pre-clean and pre-rinse are the most labour-intensive steps of the cleaning process. If the pre-clean is not effective or too short then the main clean can be inferior, making the job of the detergent more difficult. This lengthens the required contact time and adds costs and water usage. It is essential therefore that in the meat sector you use a very efficient pre-rinse, one that you can rely on.

## Fast-acting products

The ideal products are those which are fast-acting – able to quickly and easily saponify fats and those which are easier to rinse or have a 'fast-break' foam technology. Such foams break down quicker and are much easier to rinse with less foam residue.

The objective is to remove all loose soiling from equipment and soften any stubborn soiling so as to reduce the amount of work that the foam detergent needs to do. A top down approach should be taken wherever possible. However, using high-pressure ring main water nozzles can cause considerable transference of food debris from one line to another, which increases workload and reduces efficiency due to the need to re-rinse.

Using controlled 'on-off' bursts of water and restricting the current high-pressure ring main down to medium or low pressure, and using water saving nozzles, will help save water and reduce labour costs. The continuous use of squeegees to move soil on the floor into manageable quantities for removal into waste bins will detract



Foam on meat processing equipment.

positively away from hosing loose debris along floors. This also helps to prevent recontamination and cross contamination.

We recommend the use of a pre-treatment on heavily soiled food contact surfaces. For example, dedicated meat sector pre-treatment product Superkrenz applied at 0.5-1.0%v/v at the gross debris removal stage, will catch the soiling early before the fat has a chance to solidify. The benefits are the reduction of pre-rinse water and labour costs of up to 20% for a very small additional cost for the pre-treatment chemical.

When applying the main foam detergent, the objective is to cover and adhere diluted detergent to the remaining stubborn, dried-on food debris, both visible and non-visible, on surfaces. Attention should be made to undersides and difficult to reach areas. The foam consistency should be thick enough so as to not have too rapid a run-off.

A minimum contact time of 10-15 minutes is recommended so a long-cling capable foam is the best choice. The CFH chemical that is specifically formulated for the meat sector is Mida Foam 198 VH, with easy rinse ability and fast-acting foam it takes no more than 15 minutes to break down proteins and saponify fats.

The benefit in having a meat

specific detergent foam – where the alkalinity and hypochlorite levels are enhanced – means it also maintains the cleanliness and appearance of white polypropylene cutting boards and conveyor belts.

Routine agitation of the most stubborn soiling and high food traffic points using scouring pads and brushes is recommended to assist the detergent to loosen and suspend the soil ready for rinsing.

## The post detergent rinse

The purpose of the post detergent rinse is to completely remove all trace of dilute detergent and associated stubborn or dried on food debris from all surfaces using a top down approach where possible. Surfaces should then be checked. Traditionally these checks are visual and with the use of ATP swabs.

Alternatively, FreshCheck, a recently launched 'hygiene verification spray', has the advantage over ATP as it detects 'stressed bacterial cells' as well as live viable bacterial cells and organic matter. This test only takes 15 seconds with no machines or swabs required, significantly reducing hygiene verification costs and making the task much easier to carry out. It also means that any areas that are not

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fully clean can be re-cleaned immediately, prior to terminal disinfection.

We recommend that after the post detergent rinse and prior to applying the terminal disinfectant hygiene operators should change their PPE or at least their gloves and aprons. This will further reduce the risk of cross contamination and recontamination.

### Terminal disinfection

The final stage, terminal disinfection, is where all food contact surfaces and equipment are covered in disinfectant. Christeys has developed a specific product for the meat sector called Mida Chriox F2, based on peracetic acid. This disinfectant is applied as a dissolving foam which breaks down into water and oxygen and has 'non rinse' status for food contact surfaces as well as having DEFRA approval for foot & mouth, swine vesicular disease, tuberculosis and poultry diseases. This one terminal disinfectant meets all the disinfection needs for the meat and poultry sector, including livestock vehicles and equipment, as well as the meat processing plant.

Wall mounted systems are worth considering for the automatic application of foam detergent, rinse

water and disinfectant, using a centralised storage system fed from IBC supply in an external location. This would reduce drum traffic and improve waste and transportation of plastic containers, thus reducing environmental impact, manual handling and improve health and safety.

Such systems can accommodate an automated monitoring system used to monitor and record the water and chemical consumption, time that the trigger is pulled, and temperature, on every individual wall mounted unit.

'Cleanlog' provides information 24/7 via PC, tablet and smartphone giving an accurate measure of the key parameters of cleaning as well as calculating the carbon footprint.

Where meat processing companies do not have a wall mounted ring main wash down system, the Christeys Food Hygiene field team has stand-alone software tools for assisting customers with calculating the 'total cost of cleaning' and identifying opportunities to save on the cleaning parameters of water, time, chemicals and energy.

As margins get tighter and environmental concerns more pressing, it makes sense to assess current cleaning procedures.

Even a small change can pay dividends both for the planet and the bottom line. ■

## Product Options

- **Mida Foam 198 VH** is an alkaline foam detergent containing a specialised fast rinse surfactant system and an enhanced buffered level of sodium hypochlorite which rapidly helps to break down fat and high levels of protein soiling during the cleaning process. It has enhanced rinsing properties and the foam generated will allow a prolonged contact time and easy access to areas normally not possible to reach by other methods. Suitable for use in all water hardnesses.
- **Superklenz** is a heavy duty, surfactant-based alkaline degreaser and foam detergent for cleaning plant and equipment in the food processing industries. It is highly effective for the removal of soil containing raised levels of fat, grease and protein and is suitable for use in all water hardnesses. It has excellent foam characteristics, allowing it to have a long contact time and the method of application also enables it to reach awkward areas which are normally difficult to reach.
- **Mida Chriox F2** is an all-round externally approved food processing aid and terminal disinfectant with foaming properties for professional use in open-plant cleaning regimes in the meat, poultry, food, dairy and beverage industries. The PAA in Mida Chriox F2 provides both its advanced microbiological performance and organic matter oxidation breakdown with its surfactant system providing wetting, penetration and the tell-tale signs of foam, alerting the operator as to exactly where the product has been applied, even on vertical surfaces. Being mildly acidic it is suitable for use in all water hardnesses.
- **Cleanlog** monitors, records and archives all open plant cleaning activities (water consumption, temperature, cleaning times, detergent consumption) individually for each operator/washdown system drop point, enabling cost of cleaning calculations and graphs and focus on improving environmental factors as well as making the supervision of cleaning staff much easier.