Can plastic contamination be eliminated in food production?

As many food manufacturers have learned to their cost, plastic contamination in a food environment can very quickly turn into a nightmare.

by Andy Howard, Segment Specialist – Food, Rocol. www.rocol.com

The health hazards are obvious, and we know only too well that contamination incidents can also incur significant financial cost in terms of production line stoppages and product recalls.

On top of that there is often a reputational cost, and the time it takes to regain consumer trust and rebuild a damaged brand cannot be underestimated.

Putting stringent measures in place to reduce the risk of cross contamination is a top priority for food manufacturers, but are those measures always followed, all of the time, in busy production environments?

Maintenance operators, engineers, contractors and teams can all – often jointly – bear responsibility for machine maintenance.

Preventing contamination is one of many priorities these teams face, alongside maximising uptime, improving efficiency, health and safety, quality and lowering maintenance spend – among others.

Contamination from a plastic aerosol cap, nozzle or grease cartridge cap should never happen in a strictly controlled food manufacturing environment, but we hear instances of it happening all too often. So how does this scenario arise, what are the key risk areas and, crucially, can those risks be eliminated?

Operator involvement on the rise

Operators are increasingly being given responsibility for carrying out clean, inspect and lubricate tasks in the areas in which they work, which inevitably require the use of aerosols and grease. Training staff on lubrication products and procedures is key, and even with diligent, competent and conscientious staff there are risks that need to be mitigated.

The best method of control is prevention. Removing aerosol caps from cans before they are taken onto the production floor, or making sure that grease cartridges are only loaded into a grease gun away from the floor will eliminate aerosol and grease caps as a potential contamination risk.

Aerosol nozzles are a different matter. The detachable aerosol nozzle must remain in place during use, which leaves no option for removal before the aerosol reaches production areas. The only real control measure here is to make sure nozzles are in place when empty aerosols are returned but, in reality, a missing nozzle may not be noticed for several days. This could lead to large volumes of isolated (and potentially scrapped) product.

Engineering teams under pressure

Engineering maintenance teams carry out planned (and unplanned) maintenance on equipment throughout food production plants. Due to the nature and scale of the job, aerosols and grease cartridges are regularly carried onto the production floor.

And, until relatively recently, the only real measures for control of plastic parts in the food processing environment have been the same as those above: namely the strict management of aerosols and cartridges on site.

External contractors with differing priorities

External contractors are usually the experts in what they do, but it is important that they are trained in the procedures and processes of each individual site they are working on. Contamination prevention is a key part of this. External contractors will often bring their own products on site. Control measures here should be the same as for operators, but how feasible is this to monitor in practice in a busy production environment?

Tracking rogue components

As we have highlighted, it is practically impossible to eliminate plastic components completely from production areas. Making sure all plastics are checked in and out is one option for managing the risk, but it is a time intensive option that is not always practical, and certainly is not foolproof.

A missing aerosol nozzle that goes undetected could easily result in equipment downtime, not to mention the risk of isolated, scrapped or recalled product and the associated financial and reputational costs.

Eliminating the risk

Engineering out the need for plastic parts in maintenance products is the obvious solution, but currently there is no viable alternative. Many products need to be dispensed from aerosols so that the solvent or propellant can add properties that aid product performance. Grease cartridges are generally made of plastic (or plastic coated fibre) to contain the oil bleed from greases.

However, it is possible to make those plastics detectable so that your metal detectors and/or x-ray machines can identify caps or nozzles should they become loose in food and drink processing areas. The patent-protected Detex technology for metal and x-ray detectable plastic components on aerosols and grease cartridges is used on food grade lubricants manufactured by ITW companies LPS and Rocol.

The Detex components are manufactured using safe materials deemed acceptable by the US Food and Drug Administration for use in food processing plants, and ensure that components can be readily detected using existing equipment.

The solution

Until plastic components can be engineered out completely, there will always be an element of risk in food production environments. Responsible maintenance product manufacturers are continually seeking new and better ways of helping food producers reduce that risk by investing in R&D to drive product and packaging innovations, but – ultimately – the responsibility rests with food manufacturers to keep production environments safe.

Taking steps to train your workforce, educating employees at all levels about the need to keep production areas contamination-free (and the implications of not doing so), keeping a tight rein on subcontractors and taking advantage of market innovations all demonstrate that you take this responsibility seriously throughout your organisation. ■