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manufacturing chemist

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**Removing biological
contaminants from
processing waste**

**Review of drug
launches in 2002**

**Mixing and blending:
the benefits of
magnetic technology**

Plus: Previewing products at Pittcon in Florida

Fogging carts facilitate contamination control

Safety management at Eli Lilly has pioneered the development of a new system for containment and prevention of cross contamination during the manufacture of pharmaceutical powders

The Eli Lilly facility in Kinsale, Rep. of Ireland, is a bulk manufacturing plant and the main business is producing human health medicines on a large scale. In addition they also produce the active ingredients for some animal health care products. All Kinsale products are shipped to finishing plants all around the world where they are converted into final dosage forms such as pills, capsules or injectibles for use by patients.

At the Kinsale manufacturing site they employ a multi-skilled workforce with strong emphasis on the fields of science and technology which are core to their business.

The Kinsale processes are designed to be fully contained. However there can be occasions when planned breaks in containment have to be carried out and this is what this system is designed for. The concept is based on the use of a purpose-designed 'fog cart', enabling the operator to be covered by an exceptionally fine fog on exit from a critical area. Any residues on the surfaces of the Personal Protection Equipment (PPE) worn by the operator are dampened down and gently encapsulated, so that the disposable PPE can be safely discarded, with virtually no risk of transferring dust traces beyond their proper confines.

Practical alternative

For process rooms not equipped with permanent decontamination showers, the new system offers a practical alternative that can be set up without disruption - providing high levels of containment and safety at a fraction of the cost of a fixed shower installation.

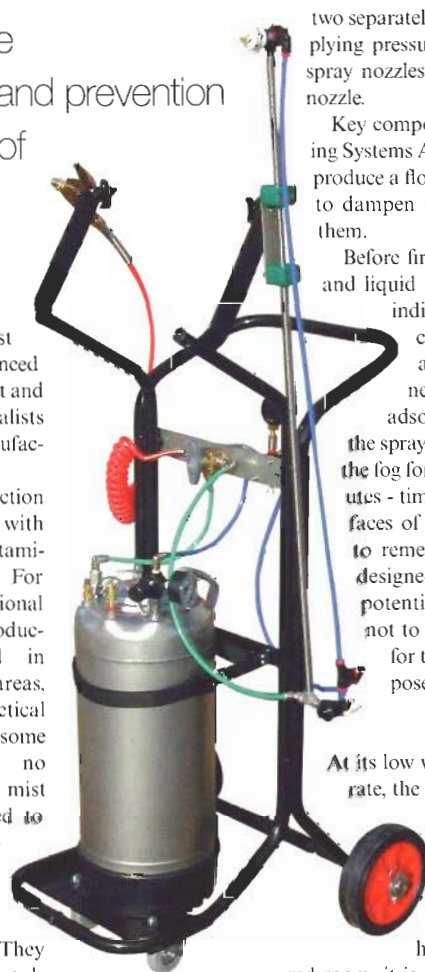
A fleet of 19 fog carts came into full

operation in November 2002 - the result of collaboration between Lilly Kinsale's Containment Technologist Tony O'Connell (who identified the need and came up with the original concept and design) and spray technology specialists Spraying Systems (designers and manufacturers of the equipment).

Certain locations within the production floors are fitted with fixed PPE decontamination showers. For space and operational reasons, with production organised in small discrete areas, this is not practical everywhere. In some locations with no shower, spray mist lances were used to reinforce containment measures.

But they had limitations. They needed water supply and they needed a second operator. Moreover, says Tony O'Connell, the heavy mist they generated tended to leave the floor wet and potentially slippery.

A prototype fog cart was designed, built and tested by Tony at the Kinsale site. The components used in the prototype were supplied by Spraying Systems. Tony then invited Spraying Systems to look at the prototype and to supply a factory build unit. As a result of this collaboration Spraying Systems are able to supply a purpose made fog shower for self-operation by a single person. The cart carries its own supply of water in a removable stainless steel pressure pot. Compressed air, from the plant system, is split into



two separately regulated streams - supplying pressure to move liquid to the spray nozzles and to atomise it at the nozzle.

Key components are the two Spraying Systems AirJet Fogger nozzles: they produce a flow-adjustable dry fog, able to dampen surfaces without wetting them.

Before first use, safety staff set air and liquid pressures. Thereafter, the individual user needs only to connect the cart to plant air, adjust spray height if necessary, lay down some adsorbent matting, then start the spray and turn around gently in the fog for not longer than two minutes - time enough to cover all surfaces of the PPE. It is important to remember that this system is designed to encapsulate any potential dust on the PPE, and not to wash, thus making it safe for the user to remove and dispose of safely.

CE marked

At its low working pressure and flow rate, the 19 litre pressure pot holds enough water to give more than two hours fogging. When it needs filling, or when the whole shower assembly has to be removed from a red room, it is easily washed down using the trigger jet spray gun which is also built in to the cart. The cart, along with all its components, is CE marked.

The great advantage of the new fog cart system, according to Tony O'Connell, is its flexibility.

"It lets us set up a buffer zone for effective de-contamination almost anywhere, using existing space and with no provision for plumbing," he says.

"We just mark out on the floor a small, dedicated area next to the exit in each room and station a fog cart there."

Another benefit is self-operation by the user. "It's more convenient and easier to validate. And the fogging process itself is quicker."

Personal safety is also improved, he believes, because the specialised nozzles give more efficient coverage, while the fog is very light so the floor stays relatively dry.

contact

More information on fog carts and advice on these and other spray applications in the pharma industry is available from:

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