

# Aseptic Pharmaceutical Processing Equipment

## External Vial Decontamination

- The National Institute for Occupational Safety and Health (**NIOSH**) has published studies describing the external contamination of chemotherapy drug vials. Several studies evaluated the external contamination of drug vials with cyclophosphamide and ifosfamide.

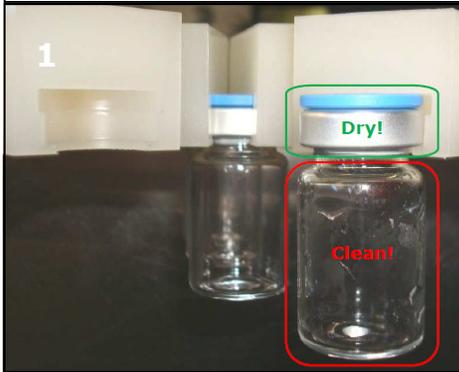
- Cytotoxic drugs may be mutagenic (causing changes to DNA), carcinogenic and can be teratogenic.

- The application of lyophilization is another source of external vial contamination as a direct result of vial breakage during the manufacturing process.

Not surprisingly, **Automatic decontaminating vials** is gaining recognition in the pharmaceutical industry.



External vial washer model EVW  
up to 400 containers/min.



**Picture 1:** The EVW encapsulates the flip-off cap (dry) and exposes the entire vial body, including the bottom (clean).

Recently, a US-based Biotech company requested PennTech to help them in solving a major vial contamination problem. The task was to clean extremely dirty vials at 400 containers per minute **and** to dry them completely when exiting the machine. The most contaminated part was the bottom of the vial. (**picture 2**) A very challenging job, to say the least. Even a high pressure water-jet did not give satisfactory results. We learned that external vial decontamination is more an art than a science.

We came to the conclusion that the only way to remove the contamination was by mechanical means. (picture 3)

After weeks of testing with different brushes at different speeds and at different angles we found the ideal combination.

The brushes are driven by submersible servomotor.

Only one problem remained: How do you completely dry the vials in less than two seconds? Answer: with Venturi air-amplifiers in combination with vacuum.



Optional Extended Drying Station

### **Benefits of the PennTech's External Vial Washer:**

- Completely sealed cap, (no water trapped in flip-off cap).
- Completely exposed vial body, including bottom.
- Automatic vial height adjustment as part of vial recipe.
- Automatic spray nozzle adjustment for each vial format.
- Tool-less vial change-over in 5 minutes (2 timing screws).
- Suitable for both 13mm and 20mm flip-off caps. (No change parts required).