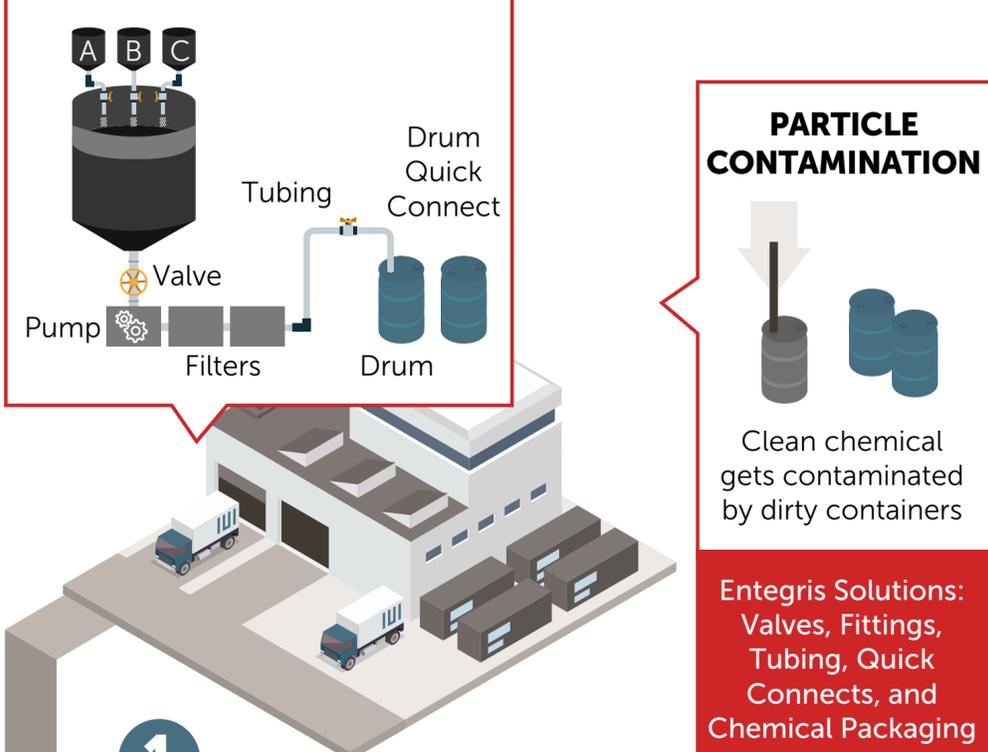


Clean Chemical Delivery

As logic devices go to smaller line widths, 3D NAND architectures increase layers and DRAM memory density increases, they become more sensitive to contamination and defects have a greater impact on device performance. To achieve optimum wafer yield and reliability, the microelectronics industry needs to address purity challenges from chemical manufacture to point of use.

Entegris is in the unique position to help customers maintain a clean chemical delivery environment with contamination-controlled chemical packaging, filtration, pumps, and fluid handling products that will increase product yield and reduce financial loss.



1

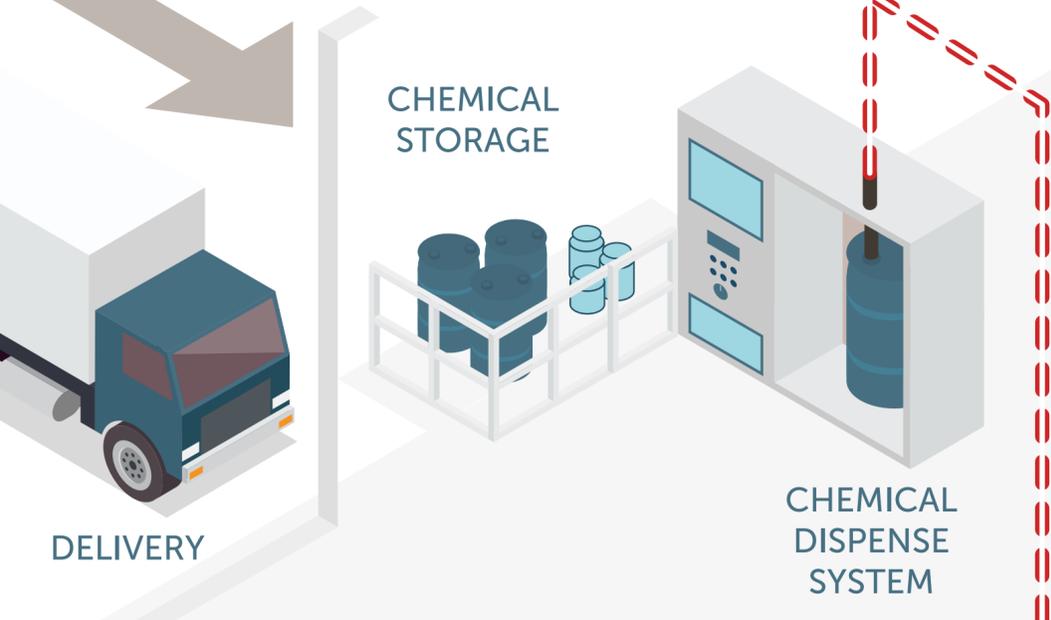
CHEMICAL MANUFACTURER

During the manufacturing process, chemical is transferred in high volumes between several containers via tubing, valves and fittings. Ultimately, chemical is stored in bulk and point-of-use containers for transport.

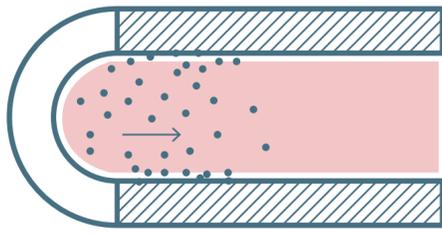
2

SEMICONDUCTOR SUB-FAB

Chemical is transported to the semiconductor fab and stored in the sub-fab, for dispensing to the point of use when needed.



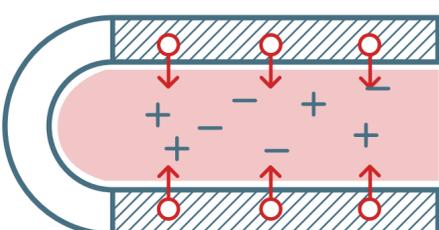
PARTICLE CONTAMINATION



Surface particles that have not been flushed from interior tubing surfaces will release into the chemical over time.

Entegris Solutions: High-purity Tubing, Fittings, Valves, and Filters

METALLIC CONTAMINATION



As chemical sits in long tubing runs, metallic ions can leach into the chemical.

Entegris Solutions: Ultraclean PFA Tubing and Valves

3

FAB FLOOR

Chemical is applied in small, precisely-measured increments onto wafers. Contaminants introduced at the point of use will create defects that negatively impact yield.

Contaminants at the point of use are detrimental to wafer yield.



Entegris Solutions: Filters, Purifiers, FOUPs