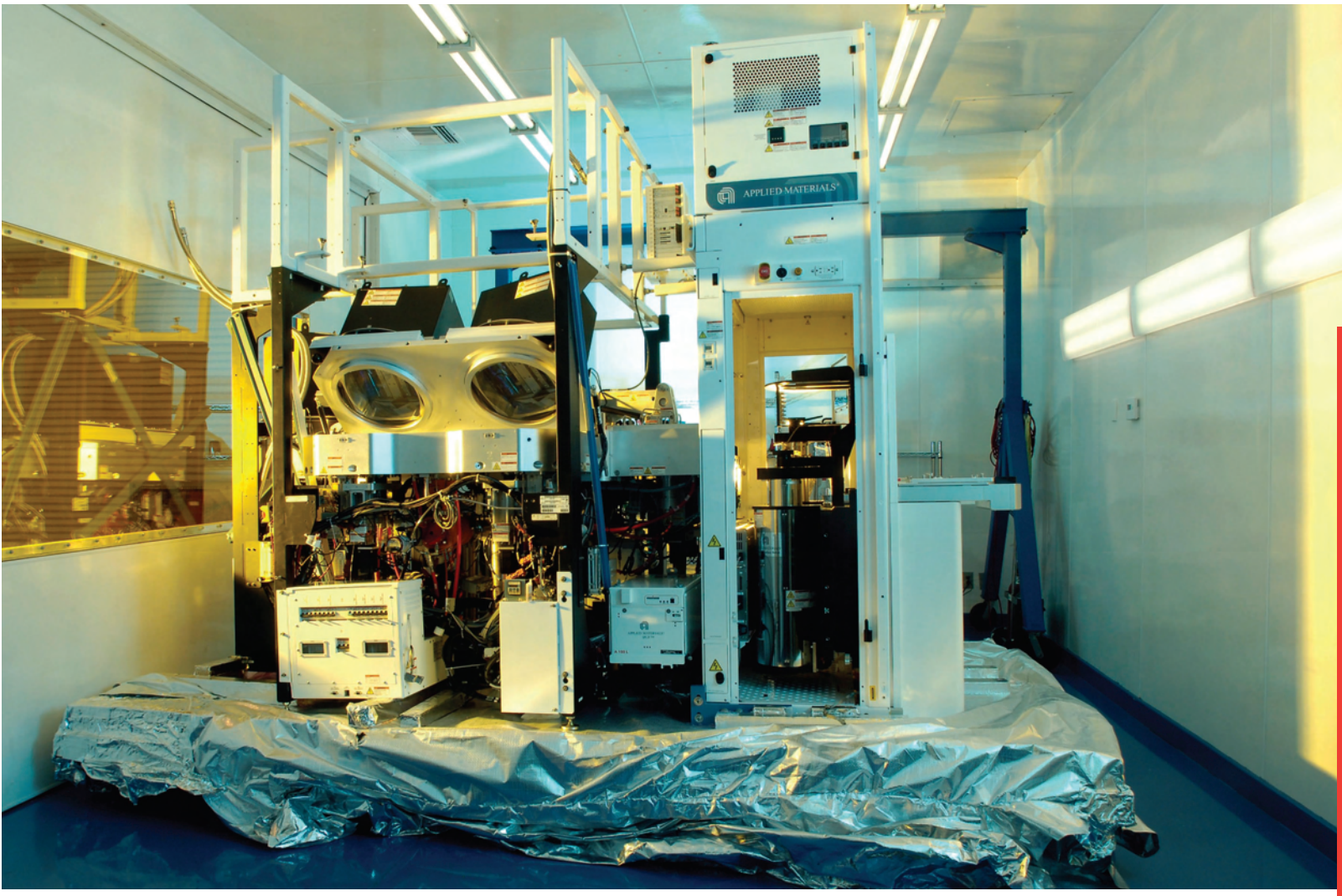
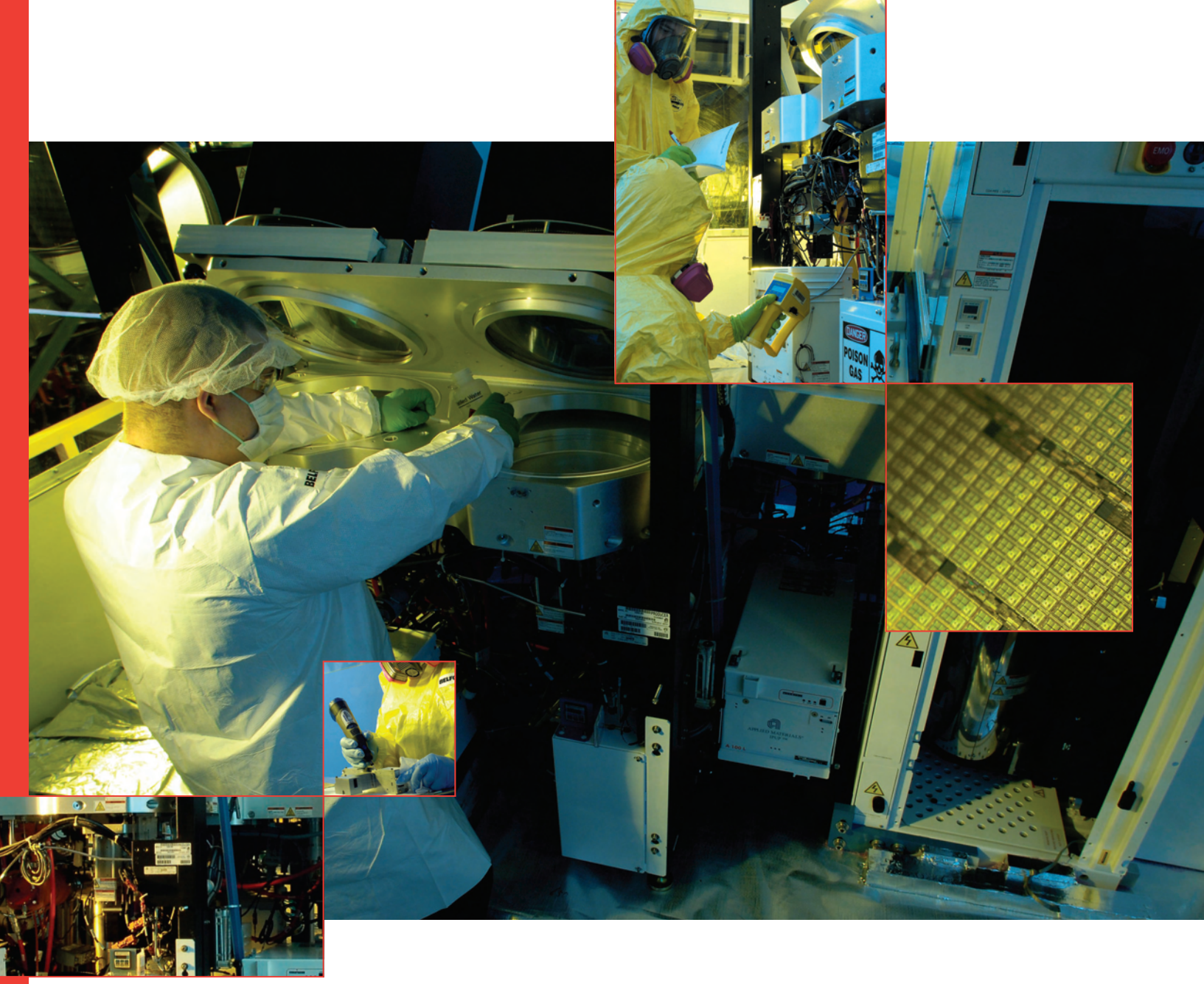


BELFOR

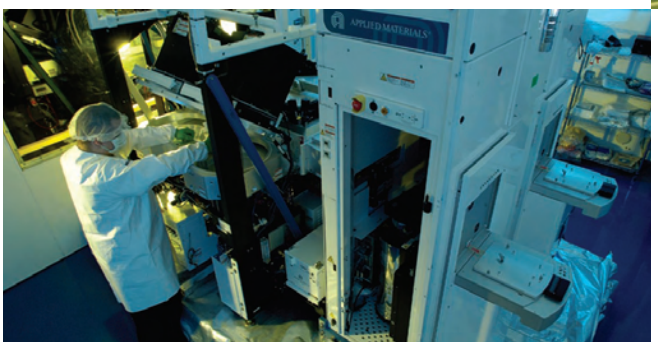
PROPERTYRESTORATION

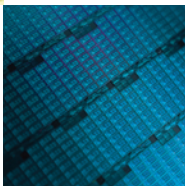


BELFOR pioneered successful decontamination and recovery of technical equipment of all types, primarily following contamination events caused by fires, floods, water ingress, chemical spills and more.

BELFOR has specific expertise in the decontamination of both “front-end” and “back-end” semiconductor equipment, and remains the leader in equipment restoration projects worldwide, frequently when the lead times required to replace the sophisticated electronic machinery can be unacceptably long.

BELFOR has the skills and practices to manage preventative and corrective maintenance activities at semiconductor facilities — and to return them to normal operations as soon as possible following a crisis.





Semiconductor Equipment

TOOL DECONTAMINATION SERVICES

SCOPE OF SERVICES

Contamination Assessment

BELFOR will review process gas and chemical lists, equipment operational status and supporting documents (where available) in order to determine the likely contamination present. BELFOR will verify this using various means depending upon the type of equipment, including but not limited to gas detection and surface wipe sample analysis.

Tool Decontamination

BELFOR will decontaminate the tool as per the OEM's documented procedures when available. BELFOR has also created decontamination processes and protocols for many models of tools in order to remove hazardous contaminants. BELFOR will document the process used for decontamination and the related test results in the form of a Decontamination Declaration Document.

Transportation Regulations Compliance

Semiconductor tools and related components that have already been exposed to process chemistries, and therefore are contaminated with process gases, chemicals and other residues, are very often transported on a global basis. Typically, this occurs when the tools are moving internally, are being moved and/or sold to alternate locations.

Contaminated equipment can pose a considerable safety risk, both during transportation and upon arrival at the final destination. Accordingly, contaminated equipment must be treated as dangerous cargo (hazardous goods). This imposes stringent transportation regulations and leads to considerably higher transportation costs.

BELFOR can assess such equipment prior to relocation, decontaminate the equipment as necessary, and provide documentation that declares the status of the equipment to freight forwarders, transportation regulatory authorities and to the party receiving the equipment, which complies with the most current revision of the SEMI S12 standard.

Rigging/Crating and Transportation Services

BELFOR can provide turnkey services not only including tool evaluation and decontamination, but also rigging, crating and the transportation of tools. These services are performed by BELFOR's logistics partners as part of a turnkey solution.

Parts Decontamination

Cleanliness of fabrication equipment parts is increasingly crucial as circuit critical dimensions reduce. BELFOR provides a range of parts cleaning solutions, allowing wafer fabrication operators to outsource this important activity.

Services

BELFOR can decontaminate, evaluate and arrange transportation of semiconductor equipment globally, giving customers the assurance that it is being done safely and in compliance with applicable regulations.

FABRICATION FACILITY SERVICES

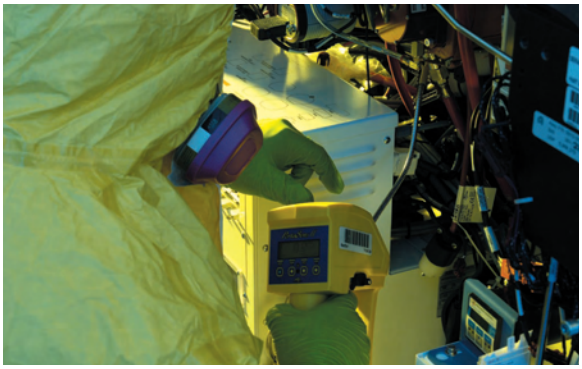
WAFER FABRICATION FACILITY DECOMMISSIONING

BELFOR can provide full wafer "fab" decommissioning services, including the assessment and decontamination of all equipment within a wafer fab and facility. Typically, the range of services provided can include:

- Equipment contamination assessment
- Equipment decontamination
- Removal, decontamination and disposal of forelines, exhaust lines, ducts, etc.
- Rigging of equipment from within the cleanroom
- Crating and transportation of equipment
- Decontamination of facilities/utilities

DISASTER RECOVERY

BELFOR can also provide extensive decontamination and recovery services for contaminated/damaged tools and equipment, utilities, cleanroom and building facilities following disaster incidents such as fires, water spills, chemical leaks and environmental contamination incidents.

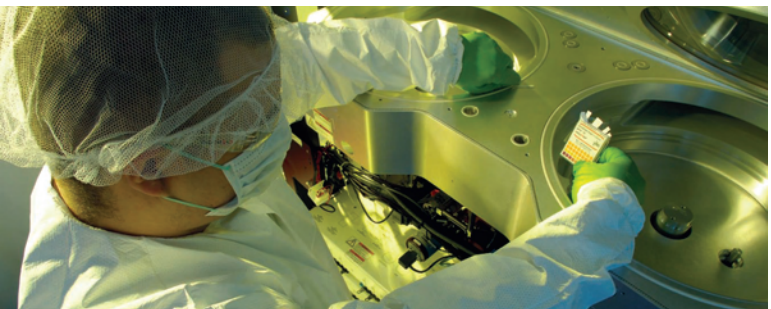


COMPREHENSIVE EXPERIENCE

BELFOR has carried out a wide range of semiconductor equipment decontamination projects, as well as several major semiconductor fab disaster recovery projects around the world. Some of our specific equipment experience includes:

- Chemical Mechanical Planar (CMP) systems
- Chemical Vapor Deposition (CVD, Inc., PECVD & SACVD) systems
- Furnaces (Nitride, Poly, Oxide)
- Gas Control Panels
- Ion Implanters
- Metrology Systems
- Physical Vapor Deposition (PVD) systems
- Spin/Rinse Dryers
- Steppers
- Wafer Packaging systems
- Common utilities and support systems

The BELFOR Technical Support Center can develop specific decontamination solutions for a wide variety of unique contamination situations. As the global leader in decontamination and disaster recovery services, BELFOR has the expertise, personnel, technology and resources to meet your needs.



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