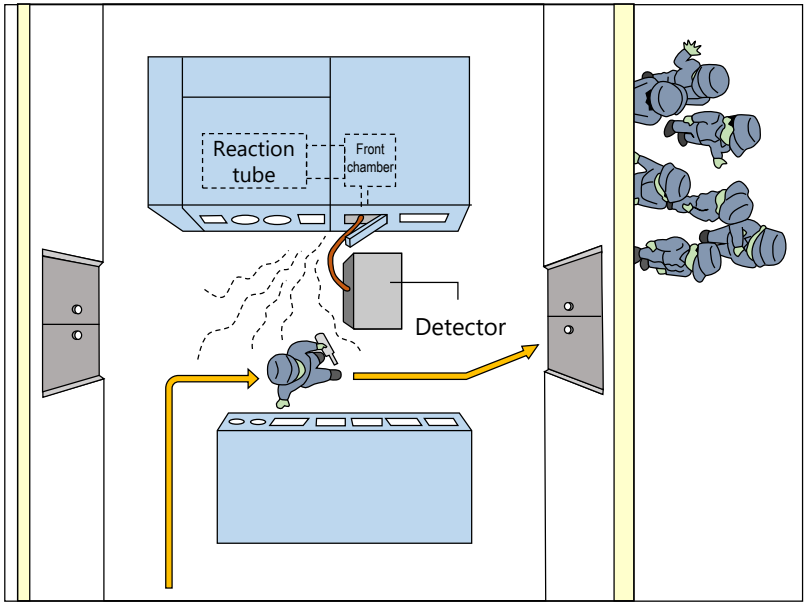
Case involving poisoning during maintenance of semiconductor manufacturing plant



[Location of accident]
During maintenance of semiconductor manufacturing plant

[Cause of accident]
Following consultation on the baking work*1 and oxidization work*2 for maintenance to be carried out by a semiconductor manufacturer, a toxic gas leak occurred when the gas remaining inside the semiconductor plant was measured using a detector tube, resulting in poisoning a worker who passed by the system.

*1 baking work: Procedure in which a reaction tube is filled with hydrogen from a gas cylinder and the temperature is raised to eliminate toxic gas from the system

*2 oxidization work: Procedure in which oxygen and nitrogen are introduced from gas cylinders to react with toxic substances adhering to the reaction tube and form an oxide layer to minimize the release of harmful substances, such as phosphorus

[Damage/injuries]
The victim rested in the office for approximately one hour but sought attention from the site physician after continuing to feel unwell. On the advice of the physician, the victim was examined at a university hospital, diagnosed with acute chemical poisoning, and hospitalized for four days.

Extract from [Preventive measures]
[1] Arrangements must be made to allow detection of harmful substances without opening the system door. Consider ways to automate the detection system to enable detection of harmful substances inside the system without opening the door.

Riken Keiki Recommendations
We recommend deploying gas monitors to check ambient concentrations before work; to check for leaks into surroundings during work; and to confirm that normal conditions are restored after the work if the work involves or may generate harmful substances.

Derived from the “Occupational accident case studies” on the Ministry of Health, Labour and Welfare “Safety at Work Site”