

A glovebox is a sealed container where a separate atmosphere is desired and built for the purpose of sensitive applications. Gloveboxes are connected to an exhaust hood and are provided with laminated safety glass panels at least on two sides for the visibility. The glovebox is ready-made from sheet metals. The work is performed by putting the hands into the fixed gloves, and manipulating the tools or materials inside the box.

The glove boxes specification could be low, medium or high.

### Low/medium/high specification

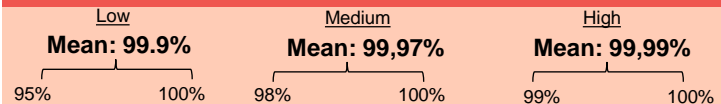
A low specification glove box is specified as a single chamber with simple access doors or pass box equipped with a single HEPA filtered extract air. The cleaning is performed manually and the change of glove and filters is not safe.

A medium specification glove box is specified as two or more chambers if a large area bin docking or high dust levels are expected. The size is dependent on the task to be carried out. The cleaning is performed manually and the change of gloves is carried out without breaking containment. The filters change is performed safely.

A high specification glove box is specified as two or more chambers equipped with alarms, integrated sampling and contained drum charging. The size is dependent on the task to be carried out. The cleaning is performed automatically and the change of gloves is carried out without breaking containment. The filters change is performed safely.



### Effectiveness



### Resources

Wouter Fransman, TNO Quality of Life (The Netherlands) et al., « Development of a mechanistic model for the Advanced REACH Tool (ART) ».

Henk Goede, TNO (The Netherlands) et al., « A Review of Workplace Risk Management Measures for Nanomaterials to Mitigate Inhalation and Dermal Exposure ».

### Best Practices

Medium / High specification:

1. The construction must be solid (stainless steel) to ensure its durability.
2. The air should be single or double HEPA filtered and or exhausted directly to the atmosphere after single HEPA filtration.
3. The equipment should be maintained under negative pressure and the air flow and filter condition continuously monitored
4. The emergency air extraction should start up automatically in the event of a leak or a damaged glove.
5. Interlocked air locks should be used to prevent high dust concentrations in the area of the transfer ports and reduce risk.
6. Waste disposal ports are required.

High specification:

1. Interlocked air locks should be used to prevent the escape of the contaminant during transfer of materials into and out of the glove box.
2. Sealed and high containment transfer ports (contained transfer couplings, rapid transfer ports (RTPs), alpha/beta valves etc.) should be installed.

