

Thermo-humidistat-equipped Inert Atmospheric Glove Box System

Purpose:

Radio-active waste, which is disposed of deep under the ground, can generate decay heat in the early stage such as several decades after disposal. The generated heat may alter cement-based material, bentonite, and bedrock and degrade their barrier performance. Evaluating the impacts of generated heat to their performance is urgently demanded for the design and the safety assessment of repositories. This inert atmospheric glove box system with built-in thermo-humidistat makes it possible to conduct heat exposure tests in the inert atmosphere.

Principal Uses:

- 1) Evaluation of alteration of cement hydrates in hot environment
- 2) Evaluation of pore structure change of cement-based materials in hot environment
- 3) Leaching tests of cement-based materials under high temperature conditions
- 4) Evaluation of changes of properties of bentonite in hot environment, etc.

Specifications:

- 1) Thermo-humidistat-equipped Inert Atmospheric Glove Box System - Two units
Inside dimension of glove box system: triple box of 1000W.x1200D.x900H.mm (total volume: approx. 3240L)
Antechambers on both sides of glove box: 500W.x225D.x320H.mm (each volume: approx. 36L)
Atmosphere controlling function: controllable by purging inert gases (N₂, Ar₂, etc.), removable of O₂ and CO₂
Other function: automatic control of inner pressure, O₂ and CO₂ monitors equipped
Thermo-humidistat specifications: 10-100C, 30-95%R.H., total volume approx. 150L
- 2) Thermostatic-chamber-equipped Inert Atmospheric Glove Box System -One unit
Inside dimension of glove box system: double box of 1000W.x1200D.x900H.mm (total volume: approx. 2160L)
Antechambers on both sides of glove box: 500W.x225D.x320H.mm (each volume: approx. 36L)
Atmosphere controlling function: controllable by purging inert gases (N₂, Ar₂, etc.), removable of O₂ and CO₂
Other function: automatic control of inner pressure, O₂ and CO₂ monitors equipped
Thermo-humidistat specifications: 10-200°C, total volume approx. 150L

Location and Date of Installation:

Abiko Campus, March 2006

