	Department of Physics National University of Singapore		Ref. No <i>SOP/001</i>
	Standard Operation Procedure Title: N₂ Glove Box		Rev. No <i>003</i>
Pages: <i>3</i>			
Lab: Nanomaterials & Devices Group			
Written by	Approved by	Issue date	Review date
Justin Zhou Yong	A/Prof Eda Goki		(usually 3 yrs after date of issue)

1. Purpose

The objective of this SOP is to provide guidelines to all the laboratory personnel on the operation of the N₂ glove box.

2. Scope

The procedure is applicable to all research staff, research students and technical staff working in the laboratory.

3. Responsibility

It is the responsibility of the PI in conjunction with the laboratory I/C to ensure that all research and technical staff and students are advised, prepared and trained.


3.1. Principal Investigator

The Principal investigator is responsible for the implementation of these guidelines and takes ownership of all research and technical staff, graduate and undergraduate students under his charge in ensuring that they will carry out their activities in a reasonably practicable manner. The PI has to ensure that all the above mentioned personnel are adequately advised, prepared and trained.

3.2. Staff / Students

All research and technical staff and graduate students are under the obligation to work and behave safely and are responsible for taking care of their own health and safety and not placing themselves or others at risk of injury

4. Personal protective equipment

	Department of Physics National University of Singapore		Ref. No <i>SOP/001</i>
	Standard Operation Procedure Title: N₂ Glove Box		Rev. No <i>003</i>
			Pages: <i>3</i>
Lab: Nanomaterials & Devices Group			
Written by	Approved by	Issue date	Review date
Justin Zhou Yong	A/Prof Eda Goki		(usually 3 yrs after date of issue)

Wear nitrile gloves when working with the glove box. Wear additional protective gear if necessary; consult risk assessment/material safety data sheet for handling of sample to be stored/withdrawn.


5. Safety precautions

Inspect equipment to be used and ensure blower and vacuum pump are in proper working condition. Inspect O₂ and H₂O levels and make sure they are below [X] and [Y] respectively. Report any equipment deficiencies prior to use.

6. Procedure

6.1. Storing/depositing sample into glove box

- Start the purge process by tapping on the monitor.
- Turn chamber valve clockwise to purge chamber. Allow chamber to reach atmospheric pressure.
- Release the chamber door by turning door knob clockwise. Lift up the door and place sample in the chamber. **Note: ensure sample container is not tightly-sealed or is strong enough to withstand the purging/evacuating process, else container might explode under pressure.**
- Close and tighten the door.
- Evacuate the chamber by turning the chamber valve anti-clockwise. Allow the pressure to reach [X] before purging to atmospheric pressure again.
- Repeat the above step **at least 2 times**. Once done, set the chamber valve to neutral position.
- Reach for the chamber door in the glove box via the glove nearest to the chamber.
- Release the door via its knob. Note: the released door is heavy; handle with care.
- Transfer sample into the glove box.
- Secure chamber door back to the chamber and tighten with knob.

	Department of Physics National University of Singapore		Ref. No <i>SOP/001</i>
	Standard Operation Procedure Title: N₂ Glove Box		Rev. No <i>003</i>
			Pages: <i>3</i>
Lab: Nanomaterials & Devices Group			
Written by	Approved by	Issue date	Review date
Justin Zhou Yong	A/Prof Eda Goki		(usually 3 yrs after date of issue)

- Handle the sample within glove box with the gloves. **Note: If sample is to be stored, ensure it placed neatly.**

6.2. Withdrawing sample from the glove box

- Start the purge process by tapping on the monitor.
- Turn chamber valve clockwise to purge chamber. Allow chamber to reach atmospheric pressure.
- Reach for the chamber door in the glove box via the glove nearest to the chamber.
- Release the door via its knob. Note: the released door is heavy; handle with care.
- Place sample into the chamber and close the chamber door.
- Open the door at the other end of the chamber and retrieve the sample.
- Close the door and evacuate. Allow pressure to reach [X] before setting chamber valve to neutral position.

7. Revision History

Date Revised	Revision No.	Author	Revision Summary
05.10.2018	002	Zhang Qi/Ng Hong Kuan	
18.12.2021	003	Justin Zhou Yong	Adopted standard format. Revised SOP to include more details.