

This SOP template is a “blank” version to allow individuals to develop their own SOP if the ones provided in the [UCSB SOP Library](#) are deemed inadequate.

To customize SOP, add lab-specific information to the sections below, as applicable. Completion of the last section (“Protocols”) is required. Also, any of the provided content below can be amended as needed to ensure worker safety.

STANDARD OPERATING PROCEDURES

*Fill out the form, print and place in your Chemical Hygiene Plan.
Click on topic banner to hide guidance.*

Date: 12/6/2017, updated 12/19/17

Check to hide instructions

1. Process

Guidance: List the process or type of process that involves the use of hazardous chemicals in this laboratory. This process may be described in general terms, such as "extraction" and "distillation" or in more detailed terms, such as "spectrophotometer analysis of cholesterol extraction." If you'd rather develop a “chemical-based SOP” than a “process-based” one, then proceed to section 2b.

1. Move the hot plate out of the fume hood, and move the solvent bottles to another fume hood to make a safe workspace for the glove bag.
2. Unfold the glove bag and connect the glove bag to the Nitrogen regulator.
3. Lay a piece of wet wiper inside the glove bag on the working space. Put another piece of wet wiper inside for cleaning. Place a zip lock bag for waste in the glove bag.
4. Load the materials (carbon black and silicone) and tools needed onto the wet paper.
5. Open the valve a little to drive the remaining air out of the bag and build a nitrogen atmosphere inside the glove bag.
6. Fold to seal the opening of the glove bag and secure it on the work space using clips or tape.
7. Open the valve to inflate the glove bag.
8. Close the valve when the bag is sufficiently inflated.
9. Open the carbon black container and use spoon to get some into the container, add silicone onto the carbon black, then cover the lid and put the spoon on the wet paper.
10. Mix the carbon black with the silicone gently using stirring stick.
11. Once the sample is sufficiently mixed, cover the lid of the sample cup. Clean the containers using the other wet wiper and move the cleaned containers out of the underneath wet wiper. Fold the underneath wet wiper to trap the contaminants inside.
12. Place the waste in a zip-lock bag.
13. Seal the Carbon black and silicone containers.
14. Open the end of the glove bag slowly and get the samples and waste out. Deposit the waste bag in the trash can.
15. Disconnect the nitrogen tube and let the gas out.
16. Fold the glove bag and put the hot plate and solvents back to the fume hood.

2. Hazardous Chemicals/Class of Hazardous Chemicals

Guidance: a. For each process, list the hazardous chemicals and the expected by-products produced; or
b. List the chemical or class of chemicals.

[Carbon Black Powder from Cabot](#)

The material is in a black plastic container that is about the size of a 26cm tall cylinder with a 14cm diameter. The total weight is about 300g. **WARNING:** May form combustible dust concentrations in air. Keep away from all ignition sources including heat, sparks and flame. Prevent dust accumulations to minimize explosion hazard. Do not expose to temperatures above 300°C. Hazardous products of combustion can include carbon monoxide, carbon dioxide, oxides of sulfur, and organic products. May cause mechanical irritation. Avoid contact with eyes. May cause mechanical irritation, soiling, and skin drying. Avoid contact with skin. No cases of sensitization in humans have been reported. Dust may be irritating to respiratory tract. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated.

3. Personal Protective Equipment

See the PPE information under [Sec. II of the UCSB Chemical Hygiene Plan](#) Sec. II of the *UCSB Chemical Hygiene Plan* regarding:

- the UC PPE Policy and policy summary (what basic PPE is required and when/where to use)
- obtaining your PPE via use of the *Laboratory Hazard Assessment Tool (LHAT)*
- glove selection criteria
- respirator use, etc.

Protective eyewear such as approved safety glasses, goggles required.

Lab coat required.

Rubber, neoprene, or nitrile gloves required.

4. Engineering/Ventilation Controls

Guidance: Describe engineering controls designed to reduce employee exposures to hazardous chemicals, such as fume hoods, snorkels, aerosol suppression devices, or safety features on equipment.

In general, hazardous materials/processes should be used in a properly functioning fume hood.

For further information see these pages in [Sec. II of the UCSB Chemical Hygiene Plan](#)

- Fume Hood Usage Guide
- Criteria for Implementing Engineering Controls

Only use in a glove bag inside a fume hood. Only open in nitrogen atmosphere. Combustible dust may form during operation.

5. Special Handling Procedures and Storage Requirements

Guidance:

- a. Describe any storage requirements for this chemical(s) in your laboratory.
- b. Include any restricted access plans, ventilation systems used, and special containment devices, etc.
- c. Describe any safe methods of transporting the chemical(s), such as double containment.

The materials will be stored in the Retouch Lab. Keep in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Do not store together with strong oxidizing agents. Do not store together with volatile chemicals as they may be adsorbed onto product. Keep in properly labeled containers.

Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated. Do not create a dust cloud by using a brush or compressed air. Dust may form explosible mixture in air.

Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations. Fine dust is capable of penetrating electrical equipment and may cause electrical shorts. If hot work (welding, torch cutting, etc.) is required the immediate work area must be cleared of carbon black product and dust.

6. Spill and Accident Procedures

Guidance: Indicate how spills or accidental releases should be handled and by whom.

See general directions under the “Chemical Incident” and “Medical Emergency” tabs of the UCSB Emergency Information Flipchart – should already be posted in all labs.



If the carbon black, silicone, or the mixture spills in the glove bag, use the cleaning papers inside the glove bag to pick up the spills and seal it in the prepared waste bag.

Report to EH&S for assistance if needed.

7. Waste Disposal

Guidance: Describe any special waste disposal procedures for these chemicals.

See “Chemical Waste Disposal” in [Sec. II of the UCSB Chemical Hygiene Plan](#) for general directions.

For the carbon black waste, mix it with the excess silicone. For the silicone and the carbon/silicone mixture waste, seal it and dispose it in the trash bag. No chemical wastes can go into the sewer system, trash or be allowed to freely move in the air.

8. Prior Approval Required

Guidance: Discuss the circumstances under which this laboratory operation, or chemical will require prior approval from the PI or laboratory supervisor to perform (optional).

[Click here to enter prior approval elements](#)

9. Decontamination

Guidance: Discuss decontamination procedures for equipment and glassware (optional).

[Click here to enter decontamination elements](#)

10. Designated Area

Guidance: Indicate any designated use area for this material or process. The entire laboratory, fume hood, or a portion of the laboratory may be considered as a designated area (optional)

This procedure can only be conducted inside a Nitrogen filled glove bag in a fume hood.

11. Lab Specific Information (required)

Guidance: Insert your laboratory protocol for specific handling practices.

Add appropriate lab-specific information here describing how this material(s) is generally used. E.g., typical frequency done, quantities used, temperature and any additional safety measures, etc. (Examples of appropriate content)

The carbon black powder is generally used to mix with silicone to make it conductive. Typical frequency of this lab is about 1 to 2 times per week for 1 to 2 hours each time. Small quantities, e.g. 2 grams are usually used in room temperature. Do not expose to temperatures above 300°C.