**Please return to Shumaker Research Building room 232 when complete.**

**I attended a Cleanroom Safety Training and Orientation session given by**

**­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**Cleanroom Website: http://louisville.edu/micronano**

Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cleanroom Client Information

Name (please print): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student/Employee ID#: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ulink User ID: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Office phone number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cell phone number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Department: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Office rm#: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Check the Cleanroom Training requirements you have completed:

* “General Chemical Lab Safety Training” Provided by DEHS
* “Hazardous Waste Safety Training” Provided by DEHS
* “Cleanroom Safety and Orientation” Provided by Cleanroom Staff

**I have carefully read the Cleanroom Orientation Manual and fully**

**understand each item listed. I understand that the cleanroom is a**

**Hazardous Area and the improper use of the facility can result in serious**

**injury or even death. I agree to obey all safety, protocol and procedure**

**rules at all times.**

Signed\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Advisor’s Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Acknowledging student’s request to
use the Cleanroom)

Person Responsible for Student’s Cleanroom Fees:

Please Print Full Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Speed Type:\_\_\_\_\_\_\_\_\_\_\_\_\_\_Account #:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. (2pts) You need to request an ambulance for someone who has been injured in the cleanroom. What number do you call?

A. 852-6111

B. 911

C. 852-6670

D. 589-8222

2. (2 pts) List all four of the locations where you can find Safety Data Sheets.

3. (1 pt) You hear the fire alarm and see flashing white lights. What do

you do?

A. Evacuate the building immediately and meet in Lutz Hall’s lobby.

B. Continue with your experiment until you reach a stopping point, then

de-gown and leave the building.

C. Immediately de-gown and leave the building to meet in Lutz Hall’s

lobby.

D. Go ask one of the other researchers if it’s a false alarm.

4. (2 pts) Below is a chart listing various items. Please cross off the items that **DO NOT** belong in the actual cleanroom without approval (some things on this list can be stored in the gowning room but are not allowed in the cleanroom).

|  |  |  |
| --- | --- | --- |
| New Chemical (Never before used in the cleanroom) | Backpack | Notebook to record results |
| Samples | Granola Bar or Gum | Pencils |
| Coffee | Makeup | Pens |
| Shorts | Muddy Shoes | Flip-flops |
| A Friend (who wants to see the cleanroom and has not been trained) | Full-length Pants | A Friend (Who’s a certified cleanroom client and your safety buddy) |

5. (1 pt) You are working at a wet bench with Nitric Acid. You accidently

knock over the beaker pouring out about 1/8 of a gallon (about 400

mL). Number the following actions in the order you would take them.

\_\_\_\_\_\_ Check the bench and floor for contamination.

\_\_\_\_\_\_ Contact the cleanroom staff for supervision and cleanup.

\_\_\_\_\_\_ Check yourself for any chemical contamination.

\_\_\_\_\_\_ Label the spill and leave someone in charge of alerting others

about the spill.

6. (1 pt) Safety showers are located where?

A. In the chases of the cleanroom.

B. On the windowed wall next to the fire extinguishers.

C. Next to every wet bench.

D. In the gowning room.

7. (2 pts) Please list the two important phone numbers to know in case of an emergency.

 Emergency Services \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Poison Control \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. (1 pt) Circle the following cleanroom rules that are **TRUE**.

A. Smoking is not allowed in the cleanroom.

B. Only log use of equipment if something exceptional happened during

your use of it.

C. You can use equipment without being trained on it.

D. You must review the Safety Data Sheets for Chemicals before

you use a chemical.

E. Shorts and Sandals are allowed in the cleanroom only during the Summer.

F. Clients should always clean up their work area before they leave.

G. Acids can be used at both the Acid and Sovlent benches

H. You can move uncapped chemical bottles between benches as long as

you are careful.

9. (1 pt) If you see someone under the safety shower by himself or

herself, you become their safety buddy automatically.

A. True

B. False

10. In the chart below, list items that you wear at all times in the cleanroom

on the left-hand side and list personal protective items that you wear

whenever you are working with chemicals on the right-hand side.

|  |  |
| --- | --- |
| Items worn at all times in the cleanroom (2 pts) | Personal Protective Equipment (worn when working with Wet Chemicals) (1pt) |
| 1. | 1. |
| 2. | 2. |
| 3. | 3. |
| 4. |  |
| 5. |  |
| 6. |  |
| 7. |  |

11. (2 pts) You are working at a bench and spill HF (Hydroflouric Acid) on

your arm. What actions should be taken? Be sure to specify any time

limits.

12. (1 pt) You see that another user is working at the wet bench and has hit the HAZMAT alarm. What do you do?

A. Continue with your experiment until you reach a stopping point, then

de-gown and meet in the lobby.

B. Continue with your experiment until you see something wrong. If or

when you notice something, you’ll de-gown and go to the lobby.

C. Immediately evacuate the cleanroom via emergency exits and meet in

Lutz Hall’s lobby.

D. Check to see if the person is contaminated and assist them if they are. . Otherwise evacuate without de-gowning and meet in Lutz Hall Lobby.

13. (1 pt) As you are de-gowning for the day you notice that you have a

spot of photoresist on your washable gown. What do you do?

A. Put the gown in the laundry hamper and make a note of it on the log,

detailing the stain.

B. Put it on the hanger.

C. Find a staff member and point it out to them.

D. Find the detergent and wash it in the sink of the gowning room.

14. (2 pts) Circle the following statements that are **TRUE**.

A. Not wearing gloves or letting your skin touch the surface of the

cleanroom is OK.

B. As a cleanroom client, you are encouraged to explore the HPM room.

C. Clients should always wear Personal Protective apparel when working

with chemicals.

D. Empty chemical bottles should be handed to the staff to clean before . disposal

E. Clients should not wear personal protective equipment outside of the

wet bench area.

F. Clients should not work with solvents at acid or base hoods.

G. Clients can sit in chairs while they work at wet benches.

H. Clients should always label any chemical mixtures they make.

I. When finished using your Personal Protective Equipment for the day,

you should make sure it is clean and dry before returning it.

J. Empty chemical bottles should be placed on the bottom shelf of their

respective cabinet for staff to clean before disposal.

15. (1 pt) You hear the HAZMAT and Fire alarms. You see flashing white

and blue lights. What do you do?

A. Continue with your experiment until you reach a stopping point, then

de-gown and leave the building.

B. Immediately leave the cleanroom and the building through the

nearest exit and meet in Lutz Hall lobby.

C. Immediately de-gown and meet in the BRB lobby to find out if the

alarm requires evacuation.

D. Call 911 to make sure the alarm is not a false alarm. If it is not, then

evacuate the building.

16. (1 pt) If a mercury lamp explodes, what should you do?

A. Call a staff member to let them know and then continue your work.

B. Call a staff member, alert others, de-gown and meet in the lobby to

find out when it will be safe for you to resume work.

C. Push the HAZMAT alarm and evacuate the building. You won’t de-gown

and you’ll meet in Lutz Hall’s lobby.

D. Call 911 and let them know what happened and then continue your

work.

17. (1 pt) You have gone through the Cleanroom Access Training and

filled out the quiz. What’s next?

A. Sign up for “process specific training” for all the equipment you can.

B. Enter the cleanroom and start processing

C. E-mail the president of the University to make sure that he has given

permission for you to enter the cleanroom.

D. Complete a process review with staff members.

18. (2 pt) Below are characteristics of chemical spills (not on a person).

Label each as either characteristic of a “Large” spill or a “Simple” spill.

|  |  |
| --- | --- |
| **Type of Spill** | **Severity Classification** |
| Spreads Rapidy |  |
| Is not Toxic |  |
| Does not endanger people or property except by direct contact |  |
| Endangers the environment outside of the building |  |
| Is less than ½ gallon of liquid |  |
| Includes any amount of HF (Hydroflouric Acid) |  |

20. (1 pt) To use the eyewashes in the cleanroom you

A. Pull-out the drawer.

B. Push down the lever.

19. (1 pt) If there is a major spill, what should you do?

A. Call the cleanroom staff and ask them to come help you clean it up.

B. Push the HAZMAT alarm, evacuate the cleanroom, do NOT de-gown,

and meet in Lutz Hall’s lobby.

C. Push the HAZMAT alarm and de-gown and go to the lobby.

20. (1 pt) For how long do you wash a Hydroflouric Acid (HF) spill on the

skin?

A. 15 minutes

B. 5 minutes

C. Until help arrives

21. (1 pt) If you spill a small amount of a minor chemical on your skin (not HF), you will ask your buddy to call for help while you do what?

A. Push the HAZMAT alarm.

B. Immediately place the affected area under running water and remove

all contaminated jewelry and clothing.

C. Get the MSDS for the chemical and wait for the ambulance.

22. (1 pt) You must always have a buddy when…

A. Performing wet chemistry

B. Gowning

C. Profiling a wafer using the DEKTAK

D. Transporting chemicals in closed containers

23. (1 pt) If a major chemical (not HF) has been spilled on a person, how long

should they be under the safety shower?

A. 5 minutes

B. 15 minutes or until the ambulance arrives

C. As long as it takes the chemical to visibly wash off.

D. They should not go under the safety shower at all. They should just

wait for the ambulance.

24. (2 pt) You get HF in your eye. Please list in detail the steps you would

take.