



# Cleanroom Safety

Albany NanoTech Complex (ANC)

# EHS Policy Statement

- NY CREATES is committed to:
  - Protecting the health and safety of its employees, partners, customers, and the public
  - Protecting the environment
  - Complying with regulatory standards

# Employee Responsibilities

- All individuals are responsible for safety at ANC
- Take an active role in your safety and the safety of others
- Perform tasks in a safe manner
- Follow Site safety policies and procedures
- Understand the potential hazards to which you may be exposed
- Contact your manager if you feel you need additional safety training

# Cleanrooms & Hazardous Production Material (HPM) areas have several potential hazards, such as...

- Physical and mechanical hazards (e.g., flammable, pyrophoric, compressed gases)
- Chemical exposures (e.g., corrosives, toxics)
- Electrical hazards
- Radiation
- Laser
- Ergonomics
- Slips/trips/falls

# You may need additional safety training

- Based upon your duties, you may need additional training such as:
  - Toxic Metalloid Awareness Training (III-V materials)
  - Compressed gas cylinder handling
  - Electrical safety
  - Fall protection
  - Hazardous waste
  - Laser safety
  - LOTO
  - Radiation safety
  - Respiratory protection
  - Others....
- Discuss with your supervisor.
- Refer to intranet site →EHS→ Training for more information.

# Some ways you could be exposed...

- Exposure can occur while working on equipment when you do not:
  - Turn off gases/chemistries and lock them out
  - Remove any residual pressure from gas and or air lines
  - Release tension or pressure loads from springs
  - Wear adequate PPE to minimize exposure
  - Work with/on equipment that is faulty
  - Defeat safety interlocks
- Always follow manufacturer's SOPs and obtain the necessary training to perform your work.



# Safety Interlocks/Shields/Guards

- A safety interlock/shield/guarding is a means of safeguarding the employee from the hazard.
- Safety interlocks are designed to work together with hinged, sliding, or lift-off doors; guards; and/or barriers.
- When the door/guard/barrier is opened, the power supply to the equipment it is guarding is disconnected.
  - Example: Laser safety interlock

DO NOT DEFEAT SAFETY INTERLOCKS unless authorized to do so

\*\*\*Ensure that interlocks/shields/guards are restored after activity is completed\*\*\*



# Control of Hazardous Energy - Lockout/Tagout (LOTO)

- Used to prevent the release of hazardous energy (e.g., electrical, mechanical, chemical) during service or maintenance activities
- Employees must be authorized and trained in LOTO
- Do not defeat, tamper with, ignore, or operate any devices, or start up any machine or equipment that is locked or tagged out







# Emergencies

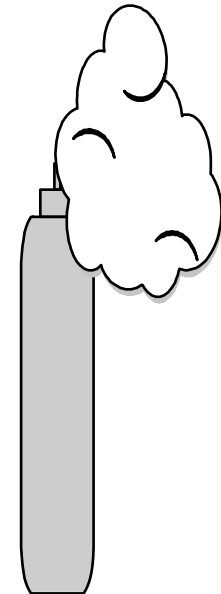
# Emergency Procedure Review

- Fire/Smoke Alarm

- White light, audible alarm, & voice enunciation
- Evacuate the building and go to your rally point

- Toxic Gas Monitoring System Alarm (TGMS)

- Blue Lights (inside the building) and audible alarm
- Evacuate via the nearest cleanroom exit (gowned)
- Regroup in:
  - NFS rotunda if in NFS/NFSX
  - CESTM rotunda if in NFN, NFC, NFX, or CESTM



# Only the NY CREATES TGMS Group is allowed to modify the TGMS system

- Jumpering out or disconnecting TGMS system is NOT allowed.
- Some tool maintenance activities can trigger a false alarm blue light evacuation.
  - Some chemicals are cross-sensitive to gas sensor (e.g., IPA, adhesives, perfluorinated compounds like coolants)
  - Power cycling the tool
- There should be a tool-specific procedure in place to prevent false alarms. This may include using snorkel exhaust and/or placing the tool in maintenance mode before performing the work.

# Chemical Splash

- If you get any chemical on you:
  - Immediately go to the shower/eyewash & activate
  - Remove any contaminated clothing
  - Wash for a minimum of 15 minutes
- A buddy should call Security immediately (518-437-8600)
- ERTs will respond, provide additional care, and arrange transport to hospital, if deemed necessary

## Did You Know?

Showers/eyewashes  
must be within a 10  
second walk!!



# Chemical Spills

- **Significant:**  $\geq$  1 pint or any amount of highly hazardous material
  - Call Security
  - Determine if anyone needs assistance
  - Barricade area & alert others in the area
  - Wait for ERTs and Security in a safe area
    - Provide additional information
    - Obtain SDS if you can

- **Small:**  $<$  1 pint
  - \*\* Applies only to chemicals that are of low hazard for which you have had training\*\***
  - Have needed equipment and PPE
  - Collect material and place in hazardous waste bag
  - Label debris and put in satellite accumulation area

**If you don't know what was spilled, call Security**

# Chemical Odors in the Cleanroom

- People can smell certain chemicals at low levels before they reach an occupational exposure limit (e.g., solvents)
- Conversely, some chemicals can be at dangerous concentrations with no odor at all (e.g., CO)
- If you feel any symptoms you believe are work-related, remove yourself to fresh air and call Security (518-437-8600)
- ERTs will respond to provide additional care and investigate the odor source

# Emergency Reporting

- REPORT to Security at 518-437-8600 and to your manager
  - Any injury, accident, odor, illness, fire, medical emergency, or chemical spill
  - Any work-related symptoms of exposure

# Chemical Labels

- Chemicals from suppliers must be labeled
- Do not remove or deface manufacturer's labels
- Secondary containers must be labeled with chemical name and hazard warnings



## Acetone



**Danger!**

Highly flammable liquid vapor. Causes severe eye irritation.

Keep away from heat, sparks and flame – No smoking. Take precautionary measures against static discharge. Keep from direct sunlight. Keep container closed when not in use. Store in a cool/low temperature, well-ventilated place away from heat and ignition sources. Use only in a well-ventilated area. Avoid contact with eyes, skin and clothing. Wear appropriate personal protective equipment, avoid direct contact.


**IF CONTACT WITH EYES:** Flush eyes with water for at least 15 minutes while holding eyelids open.

In case of fire, use water spray, fog or mist. Dry chemicals. Halon. Powder, foam or CO2.

See Safety Data Sheet for further details regarding safe use of this product.

ABC Company, Main Street, Anytown, NJ 00000, Tel: 555 123 4567

## Globally Harmonized System (GHS) for Hazard Communication Labels

PRODUCT ID:	
SIGNAL WORD	DANGER <input type="checkbox"/> WARNING <input type="checkbox"/> N/A <input type="checkbox"/>
	
SPECIAL HAZARD / PRECAUTIONARY INFORMATION	PPE



# Quick GHS Refresher

**1** Product Identifier  
EPICHLOROHYDRIN

UN No. 2023  
CAS No. 106-89-8

**2** Signal Word  
**DANGER**

**3** Pictograms

**4** Hazard Statements  
Flammable, liquid. Causes skin burns and eye damage. May cause an allergic skin reaction. May cause cancer.

**5** Precautionary Statements  
Wear protective gloves/protective clothing/eye protection.

Fill Weight: 18.52 lbs. Lot Number: A032311323  
Gross Weight: 20 lbs. Fill Date: 1/15/2012  
Expiration Date: 1/15/2018

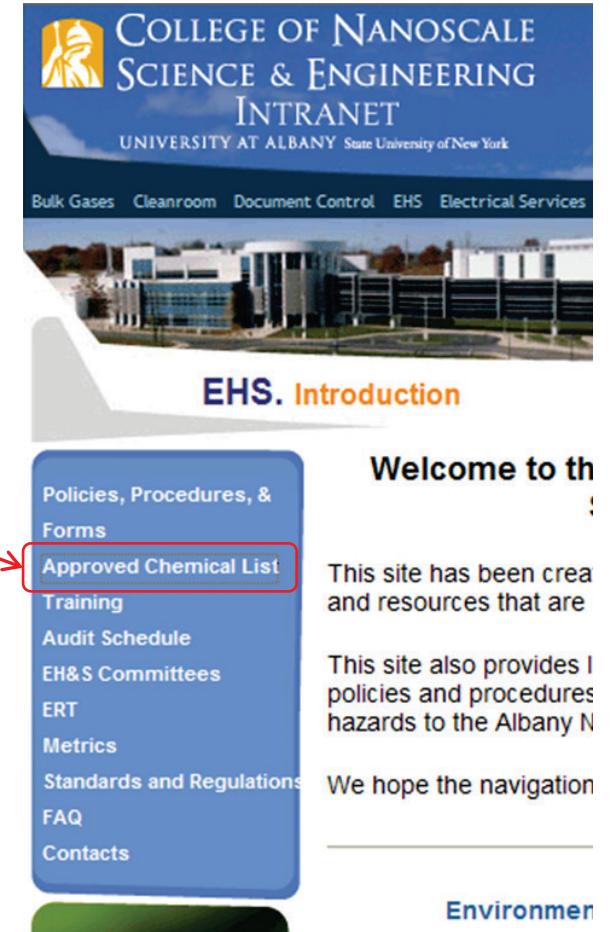
**6** Supplier Information  
JACKSON CHEMICAL COMPANY - City of Industry, Los Angeles, California, USA (800)-444-456-8989

- **Quick pictogram activity:**
  - Match the pictogram wording below with the correct pictogram image in the table on the right.
    - Chemical
    - GHS Pictogram
- **Methanol**
  - Flammable, acutely toxic (cat 3), target organ toxicity
- **Lead nitrate**
  - Oxidizer, acutely toxic (cat 4), target organ toxicity, reproductive toxicity, serious eye damage, aquatic toxicity
- **Hydrogen peroxide 30%**
  - Corrosive, oxidizer, acute toxicity (cat 4), serious eye damage

GHS Physical Hazard Pictograms				
Flammable	Oxidizers	Corrosives	Explosives	Compressed Gases
<i>Specific physical hazards included in this pictogram group</i>				
-Flammables -Pyrophorics -Self-heating -Emits flammable gas -Self-reactives -Organic peroxides	-Oxidizers	-Corrosive to metals	-Explosives -Self-reactives -Organic peroxides	-Gases under pressure
GHS Health Hazard Pictograms				
Corrosives	Skull & Crossbone	Health Hazard	Exclamation Point	Environmental
<i>Specific health hazards included in this pictogram group</i>				
-Skin corrosion/burns -Serious eye damage	-Acute toxicity (fatal or toxic) (category 1,2,3)	-Carcinogen -Mutagen -Reproductive toxicity -Respiratory sensitizer -Target organ toxicity -Aspiration toxicity	-Irritants (skin and eyes) -Skin sensitizer -Acute toxicity (category 4) -Narcotic effects -Respiratory tract irritant	-Aquatic toxicity (based on LC50 for fish)

# Obtaining Chemicals

- **Approved Chemical List**
  - On EHS Intranet Site
  - Use the Hazmin Database
- **Chemical Approval Process**
  - All chemicals must be approved by EHS before purchase
  - Approvals are specific to that location/tool
  - Complete online form (through Hazmin Database)
    - Provide SDS, volume, location, etc.
    - If your chemical is new to the tool, you will need to complete the New Equipment/Modification/Process Change Checklist – Refer to EHS-00016-F1
    - If your chemical requires a tool modification, you will need to go through equipment commissioning procedure (“green book”) – Refer to EHS-00017
    - If you’re requesting a HPM for a lab space, you will need to submit an SOP.



# Safety Data Sheets

- Provides information on the chemical, including:
  - Physical/chemical properties (pH, flash point, etc.)
  - Toxicity data
  - Storage and shipping requirements, incompatibles
  - Required PPE
  - Emergency response procedures
  - NFPA codes
- Are available 24/7 through Hazmin
- SDSs are also searchable on the internet – manufacturer websites

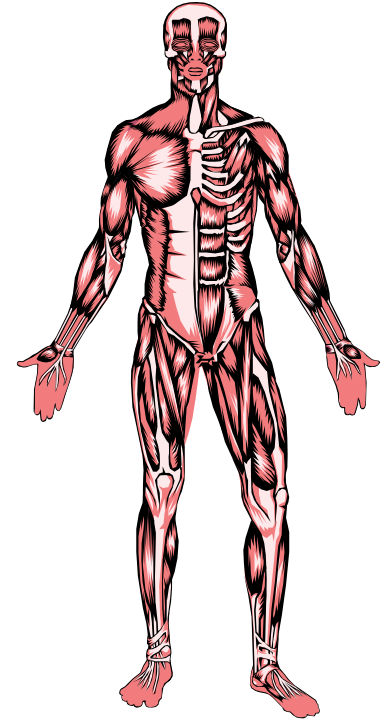
# Physical and Chemical Hazards

- Flammable
- Pyrophoric
- Peroxide-formers
- Oxidizers
- Irritants
- Sensitizers
- Corrosives (acids, bases)
- Toxics (poison)
- Asphyxiant
- Carcinogens, Teratogens, Mutagens



# How Can You be Exposed?

- **Ingestion:** Eating or transfer from contaminated hands
- **Inhalation:** Breathing in through the mouth or nose
- **Injection:** Needle stick or into a cut, directly into bloodstream
- **Absorption:** Contact with the skin or eye



We have engineering controls, administrative controls, and PPE to protect you in the presence of potential hazards at the ANC.

# Flammable



- Based on the chemical's flashpoint
  - The lower the flashpoint, the easier it is to ignite the material. Keep away from heat, ignition sources, and strong oxidizers.
- Store flammable material in flammable storage cabinets
  - Must be self-closing, grounded, and labeled:
    - **"FLAMMABLE – KEEP FIRE AWAY"**
- Storage of flammables must not obstruct any exit
- Use only *explosion proof refrigerators* certified by the manufacturer for storing flammable material. They must also be labeled:
  - NOTICE FOR CHEMICAL STORAGE ONLY. DO NOT STORE FOOD OR BEVERAGES IN THIS REFRIGERATOR.



# Pyrophorics



- A substance that spontaneously ignites in air at temperatures at or below 130° F
  - Examples: silane, tributyl aluminum
- Store pyrophoric chemicals away from sources of ignition and flammables
- Many pyrophoric chemicals also release toxic and flammable gases
- Pyrophoric liquids shall be transported on a cart with the ampoule inside a metal container/housing
- Pyrophoric containers must be properly labeled and include a contact name



# Pyrophoric Deliveries



- Pyrophoric deliveries are only allowed between 9 AM and 3 PM, Monday - Friday
- During deliveries to and from the tool, the tool engineer and Air Liquide must coordinate a direct hand-off of the pyrophoric
  - Once received, it must be transported directly to the cabinet and installed immediately
- The maximum quantity of pyrophoric liquid allowed at any single workstation is 0.5 gallons
- Refer to procedures in EHS-00005 Chemical Handling and Storage Procedures for more requirements



# Oxidizers



- Substances that initiate or promote combustion in other materials
  - Chlorine
  - Chlorine trifluoride
  - Hydrogen peroxide
  - Oxygen
  - Concentrated nitric acid (>69%)

**CAUTION**  
**Avoid storage next to flammables!**

# Irritants



- Produce inflammation of tissue upon contact
  - On your skin
  - If you breath an irritating chemical vapor, gas, or mist
- Short term exposure to an irritant is generally reversible once the irritant is removed



# Sensitizers



- Cause allergic reactions (sensitization)
  - Dose-related
  - Can cause you to develop an allergic response which could be immediate or delayed (several weeks or months depending on individual)
  - Can be severe or fatal
  - Examples:
    - Latex gloves
    - Formaldehyde
    - Diesel Fuel



# Corrosives

- Determined by pH and concentration (see SDS)
- Corrosives are destructive to human tissue
- Severity of damage depends on concentration of corrosive
- Severe exposure may cause permanent damage
- Wear gloves and eye and face protection when handling corrosives
- FIRST AID – Flush a minimum of 15 minutes
- Acids and bases MUST be segregated for storage
- Use plastic trays, tubs, or buckets for separation within the cabinet

HF

Substance	pH
Battery acid	0.5
Gastric acid	1.5 – 2.0
Lemon juice	2.4
Cola	2.5
Vinegar	2.9
Orange or apple juice	3.5
Beer	4.5
Acid Rain	<5.0
Coffee	5.0
Tea or healthy skin	5.5
Milk	6.5
Pure water	7.0
Healthy human saliva	6.5 – 7.4
Blood	7.34 – 7.45
Sea water	8.0
Hand soap	9.0 – 10.0
Household ammonia	11.5
Bleach	12.5
Household lye	13.5

TMAH



# Toxics

- Able to cause illness/disease, injury, death
- Includes:
  - Carcinogens
  - Mutagens
  - Organ Toxicity
  - Reproductive Toxins
  - Teratogens
  - Sensitizers
- Everything can be toxic!
  - The dose makes the poison



Skull & Crossbones  
Acute Toxicity  
Category 1, 2, or 3



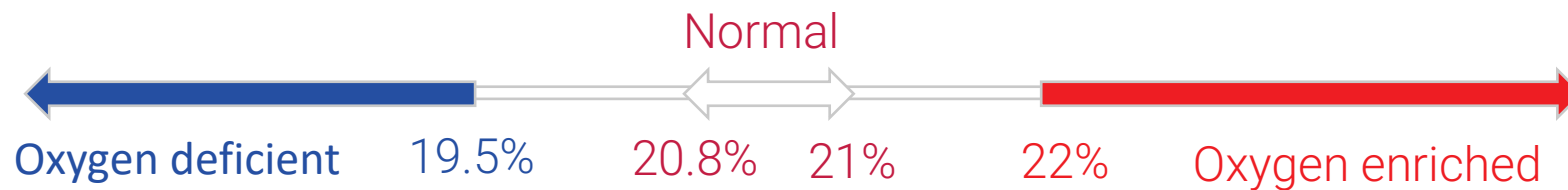
Health Hazard



Acute Toxicity  
Category 4

# Asphyxiants

- Simple Asphyxiants - Displace oxygen (e.g., N<sub>2</sub>)
- Chemical Asphyxiants - Interfere with O<sub>2</sub> delivery
  - Can have other hazards (flammable)
  - Can also be odorless (e.g., carbon monoxide)



# Carcinogens



- Agents that produce or accelerate the development of malignant tumors
  - Can remain dormant for up to 40 years
- Contributory factors include:
  - Lifestyle - diet, smoking, and alcohol (80-90%)
  - Chemical exposure level
  - Genetics
  - Age
  - Sex
  - Hormone levels
  - Immunologic (AIDS)

# Hydrofluoric Acid (HF)



- Causes deep, painful, slow-healing burns
- Burns may not be apparent for up to 24 hrs.
- Fluoride ion destroys soft tissue & decalcifies bone
- Call Security if you think you were exposed to HF
- ERTs have calcium gluconate to treat skin contact

Day 1



Day 6



Day 12



90 Days





# Tetramethylammonium Hydroxide (TMAH)



- Causes injury or death from skin contact at or above 1% TMAH in water
- Uses on site are of concentrations from <1 % up to 25%
- TMAH is corrosive to the skin, eye, and upper respiratory tract
- TMAH can be highly toxic and fast-acting
  
- Signs and symptoms:
  - 2nd to 3rd degree burns of skin
  - Irregular breathing and heartbeat
  - Progressing to coma, shock and, in most cases, death
  
- Follow the SOP and hazard assessment; use appropriate controls and PPE to prevent exposures

# If you are pregnant or intend to start a family

- Be especially careful to avoid contact with hazardous chemicals, particularly those that are reproductive toxins or teratogenic
- If you are concerned, consult your physician and supervisor
- Some reproductive toxins can have adverse effects on males

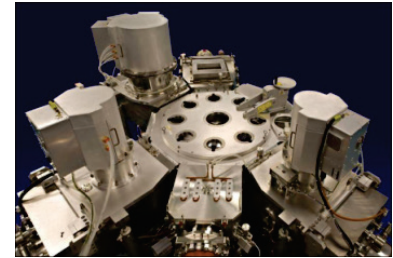


# Transporting Hazardous Production Materials (HPMs)

- Liquid HPM transport requires secondary containment when outside their DOT shipping container
- Incompatible chemicals cannot be transported together on the same cart
- Only specific transport routes can be used for HPMs
- Passenger elevators should never be used to transport HPMs in buildings where chemical elevators are available (NFN, NFX, and NFC)
- Two qualified persons are required for transporting HPM chemicals in elevators
  - No one is allowed to ride in an elevator with HPM chemicals
- Do not transport any chemicals in personal vehicles
- See EHS-00005 Chemical Handling and Storage for requirements

# Chamber Opening Guidelines

- Ensure that proper notifications (equipment support team [EST], Security, etc.) have been made and permits completed, and all applicable procedures are followed
- Ensure tool/equipment has been placed in **maintenance mode** and **notify Security**
- Use appropriate control measures:
  - Barricading (10' perimeter of tool)
  - Use snorkel exhaust or other forms of local exhaust ventilation control
  - Personal protective equipment
- Floor tile removal permit must be completed if floor tiles are removed
- Ensure proper housekeeping and cleanup/disposal of contaminated waste materials



# Pouring Chemicals Guidelines

- Know the hazard before using a chemical (review SDS)
- Use appropriate PPE; barricade the area
  - Gloves, safety glasses/goggles, arm guards, apron, face shield
- Pour chemical in a fume hood or with local exhaust ventilation
- If pouring larger quantities (> 5L), use peristaltic or hand pump
- If mixing solutions, ensure that the chemicals are compatible and establish mixing protocols/procedures
- Don't eat or drink when handling chemicals – always wash your hands afterwards



# Work Alone Policy

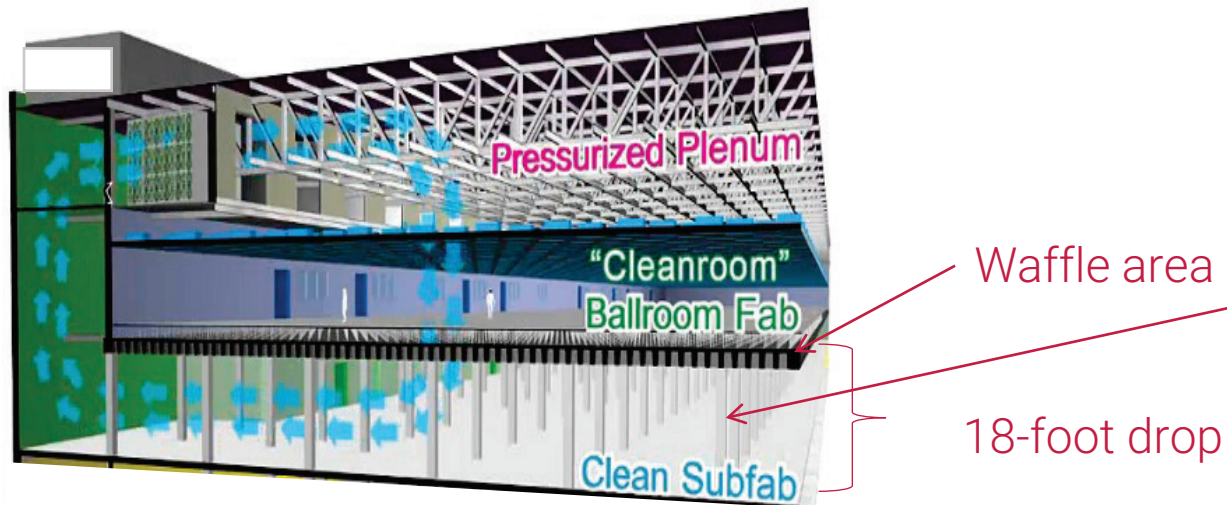
- A “Buddy” is required when working with highly hazardous materials (e.g., TMAH, HF, pyrophorics) or on high hazard equipment (refer to EHS-00045 Working Alone Policy)
- Buddies should help each other in case of exposure/emergency
  - Help victim to emergency shower/eyewash
  - Call the emergency number
- Supervisor will determine when a “Buddy” is needed



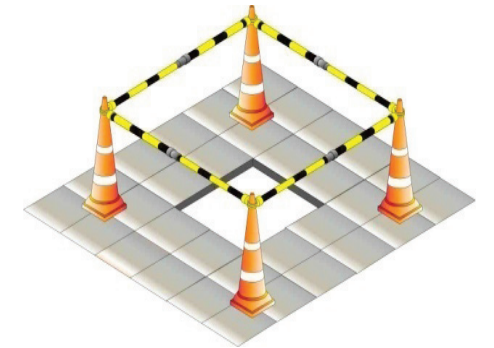
# Floor Tile Removal Requirements

# Floor Tiles

- Due to fall hazards (people, items), you must follow floor tile removal procedures
- Floor Tile Removal Approval Permit (found in gowning room)
- It must be approved by the Cleanroom Coordinator



**Don't forget to wear your hard hats in the subfab!**

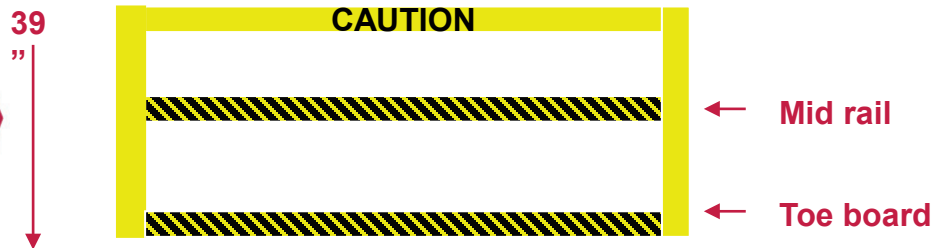


- You must use barricades when removing a floor tile
  - Used to communicate the fall/trip hazard to others working in the area
  - Barriers must be placed at least one floor tile width away from the opening

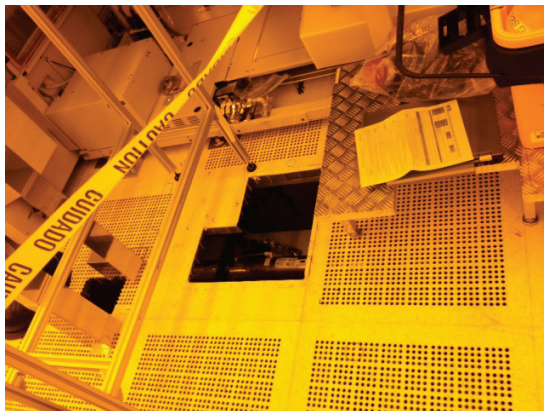


# Barricades

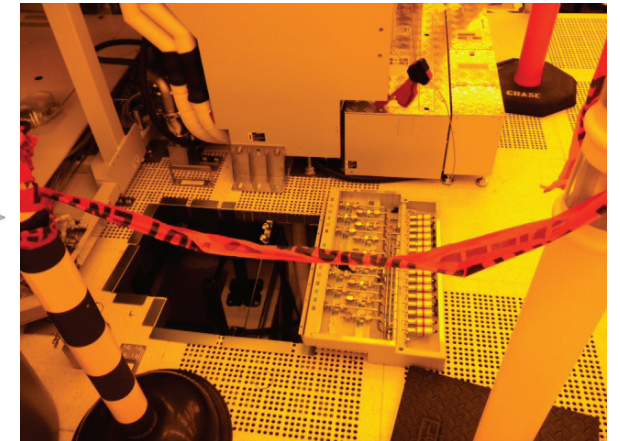
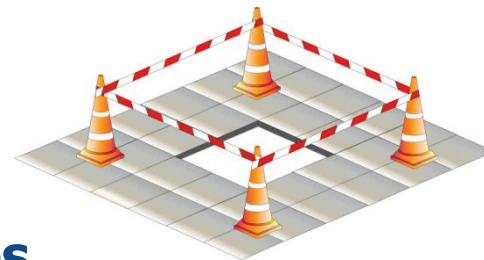
- A hard barrier must be used when removing floor tiles in the NFN and NFC cleanroom where a fall of  $\geq 4$  feet is possible.



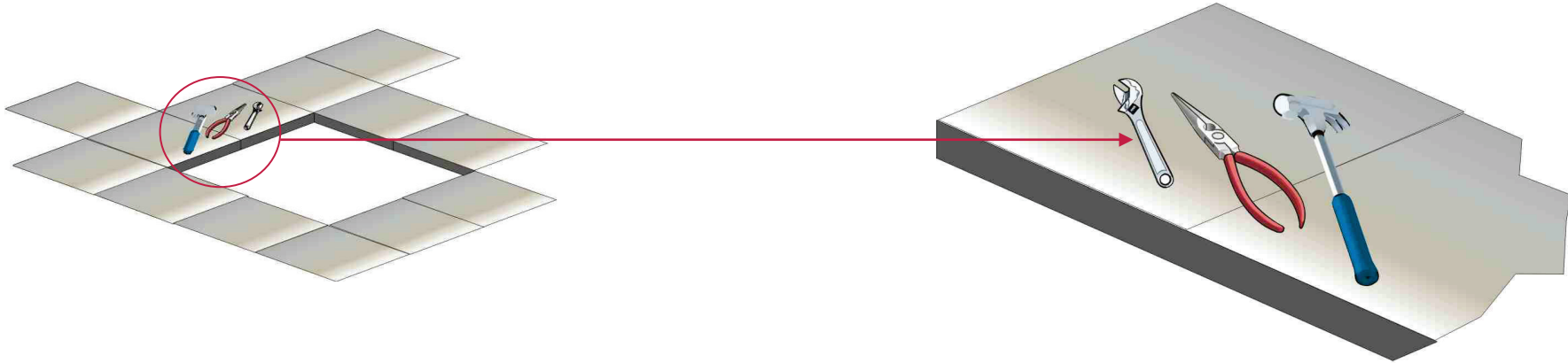
- Soft barriers consisting of chains or "caution" tape and cones can be used in the **NFN subfab** and **NFS/X cleanroom**.
- Soft barriers can only be used where a fall hazard does not exist and a spotter is present.



**Improper  
barricades:  
Left unattended  
No Hard Barricades  
 $\geq 4$  feet drop**



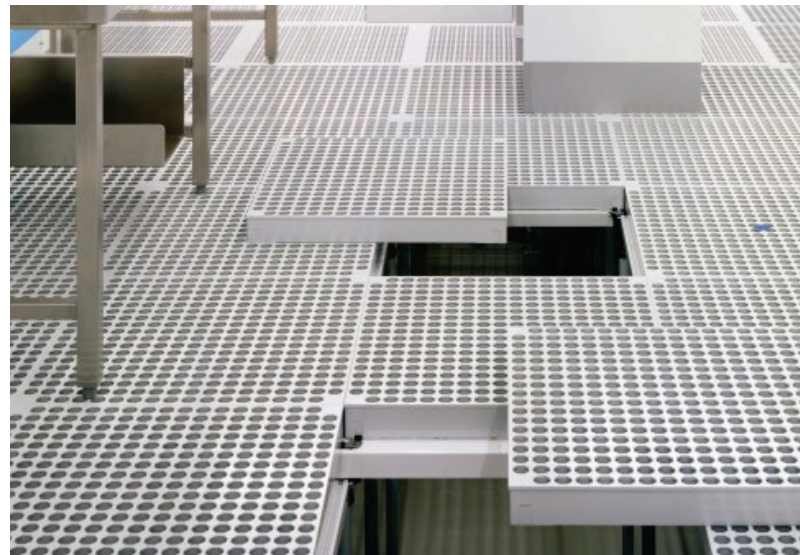
# Tools at the Opening



- A tether must be used in **NFN & NFC cleanroom** to prevent tools from falling, if such a fall potential risk exists, such as:
  - Floor tiles situated above high-risk utilities (gas, water, and electric)
  - Floor tiles situated over a waffle slab above a sub floor where there is a drop of more than six (6) feet.

# Waffle Covers

- Employees working in the waffle area can use waffle covers (diamond steel or aluminum plates) to cover the waffle floor openings OR have to be tied off (fall protection harness)
- Waffle covers should be placed so they cannot be moved, and they leave no openings greater than 1 inch wide
  - Hand tools do not need to be tethered
  - Employees working in the area only have to wear a harness to secure/remove the waffle covers



# PERSONAL PROTECTIVE EQUIPMENT

refer to EHS-00010



# Head Protection

- Hard Hats
  - Required in the NFN/NFC Subfab
- Bump Caps
  - Not allowed where hard hats are required



# Eye and Face Protection

- Safety Glasses are required to be used as specified in EHS-00010
  - Side shields
  - Z-87



- Goggles
  - Tighter fit for chemical protection



- Face shield – always required in addition to safety glasses when dealing with a splash hazard of HPM



- If you get chemicals in your eye, start rinsing immediately

# Foot Protection

- Steel Toe
- Rubber or Chemical
- Shoes must be ASTM approved (ASTM F2412-11)
- Required for:
  - Gas Cylinder Handling
  - Chemical Handling
  - Shipping/Receiving
  - Facilities Maintenance
  - Electrical Hazards
  - Hot, Corrosive, and Toxic Substances
  - Falling, Crushing, or Penetrating Objects
- While working in Cleanroom and Lab areas, shoes must have:
  - Closed heels and toes
  - Heel height < 2"
  - Heel base at least 1/2"
- Chemical areas:
  - Soles must be non-porous and impervious
  - NO open-toed shoes



# Hand & Body Protection

- Many different materials and styles



Chemical resistant sleeve apron



Tyvek suit



Nomex hood

**Be sure you know that the material will protect you against the hazard & that it is not damaged or defective!!**

- Example:
  - Employee needs to hand pour 200 mL of 96% sulfuric acid into a bath. What glove material could be used? To find out go to: <http://www.mapa-pro.com>

## • Gloves/Sleeves

- Sharp objects/Cut resistant: Leather, Kevlar
- Chemical Resistant: Tri-polymer blend of nitrile, neoprene, and natural rubber – used for MOST (not ALL) acids, bases, or solvent mixtures





# HF Incident in Subfab

- A worker was working in the Subfab on a line that contained hydrofluoric acid (49%), nitric acid, and acetic acid (1:1:1). The worker believed the line was locked out, but it wasn't.
- He broke the line to do PM work, but the line was still pressurized, and a liquid sprayed under his face shield to the side of his face.
- He was wearing face shield, gloves, safety glasses, apron.
- There was a buddy nearby who was able to get him to the shower immediately and call Security.
- The ERT responded, showered him, and applied calcium gluconate. He was transported to Albany Med for observation.

# HF Incident in subfab - Findings

- Patient suffered no injuries
- A buddy was present which allowed for immediate action to rinse off the worker and call Security for help.
- Should have worn safety goggles vs. safety glasses.
- Proper hazardous energy procedures were not followed – the worker should have checked himself that the line was de-pressurized and locked out.
- Proper PPE apart from eye protection was worn, but the employee still suffered chemical exposures.
- Think ahead: What hazards can I face? What could go wrong? What can I do to minimize risk?

No line of defense is 100%! Always think ahead!

# Waste Management



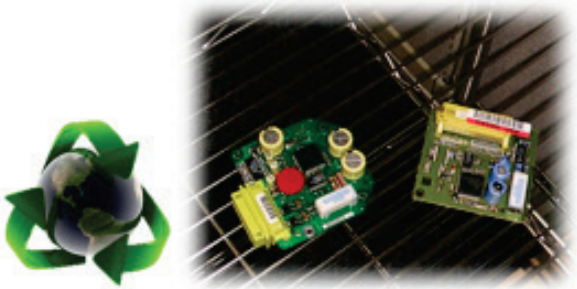
**Hazardous Waste**



**Universal Waste**



**Non-hazardous Waste**



**Other Exempt Waste**

# Waste Management

- Waste disposal is the responsibility of the generator
  - Generator: Any person whose act or process creates hazardous waste.
- No waste goes down the drain or in the trash
- All waste goes to the designated SAA (Satellite Accumulation Area)

Contact EHS with any disposal questions: [SUNYPOLYEHS@sunypoly.edu](mailto:SUNYPOLYEHS@sunypoly.edu)

Tina Ovitt – Environmental Engineer

# Wastes

- Non-Hazardous Waste

- Does not meet the EPA Haz Waste criteria
- Do not pour down drain or put in trash
- Label with “Non-Haz” Label and put in SAA

- Universal Waste

- Batteries, lamps, paint, & mercury-containing devices ONLY
- Label and put in SAA
- Indicate type of items (i.e., lamps) and date



# Hazardous Waste

- EPA Characteristic Hazardous Waste is:
  - **Ignitable** (FP < 140°F)
  - **Corrosive** (pH < 2 or > 12.5)
  - **Reactive** (e.g., can react w/ H<sub>2</sub>O to form gases)
  - **Toxic**
- Hazardous waste containers/bags:
  - Must be labeled
  - Good condition
  - Closed at all times (no funnels)
  - Waste is compatible with container
  - Incompatibles must be separated!



**HAZARDOUS WASTE**

**ACCUMULATION** (Check box if satellite )

Solid Waste  Liquid Waste  Mixed Waste

Ignitable (Flashpoint < 140°F) \_\_\_\_\_

Reactive  Toxic

Corrosive (pH<2.0) or (pH>12.5) \_\_\_\_\_

Start Date: \_\_\_/\_\_\_/\_\_\_ Fill Date: \_\_\_/\_\_\_/\_\_\_

Contact Name: \_\_\_\_\_ Department/Building/Tenant: \_\_\_\_\_

Chemical contents (product name or major chemical component): \_\_\_\_\_

\_\_\_\_\_

**HANDLE WITH CARE!**  
**CONTAINS HAZARDOUS OR TOXIC WASTES**



# How to complete a Hazardous Waste Label

- Check Type: **SOLID** or **LIQUID** or **MIXED**
- Check Hazard: **IGNITABLE, CORROSIVE** (indicate pH), **TOXIC**, or **REACTIVE**
- **START DATE**: the date you first put waste into the container
- **FILL DATE**: the date you place the full container in the satellite accumulation area
- Write **NAME** of person responsible for generating waste and their department
- **CONTENTS**: Name of the chemical(s) that makes the waste hazardous

**HAZARDOUS WASTE**

**ACCUMULATION** (Check box if satellite )

Solid Waste  Liquid Waste  Mixed Waste

Ignitable (Flashpoint < 140°F) \_\_\_\_\_

Reactive  Toxic

Corrosive (pH<2.0) or (pH>12.5) \_\_\_\_\_

Start Date \_\_\_\_/\_\_\_\_/\_\_\_\_ Fill Date \_\_\_\_/\_\_\_\_/\_\_\_\_

Contact Name: \_\_\_\_\_ Department/Building/Tenant: \_\_\_\_\_

Chemical contents (product name or major chemical component):  
\_\_\_\_\_  
\_\_\_\_\_

**HANDLE WITH CARE!**  
**CONTAINS HAZARDOUS OR TOXIC WASTES**

# Satellite Accumulation Areas



- Place properly labeled waste in the satellite accumulation area (see EHS-00009)
- Needs to have spill containment
- Only 1 container per waste stream
  - *max of 55 gallons*
- Move to 90-Day Storage Area within 3 days of being filled
- Use different shelves or secondary containers for different waste streams to keep incompatible waste apart

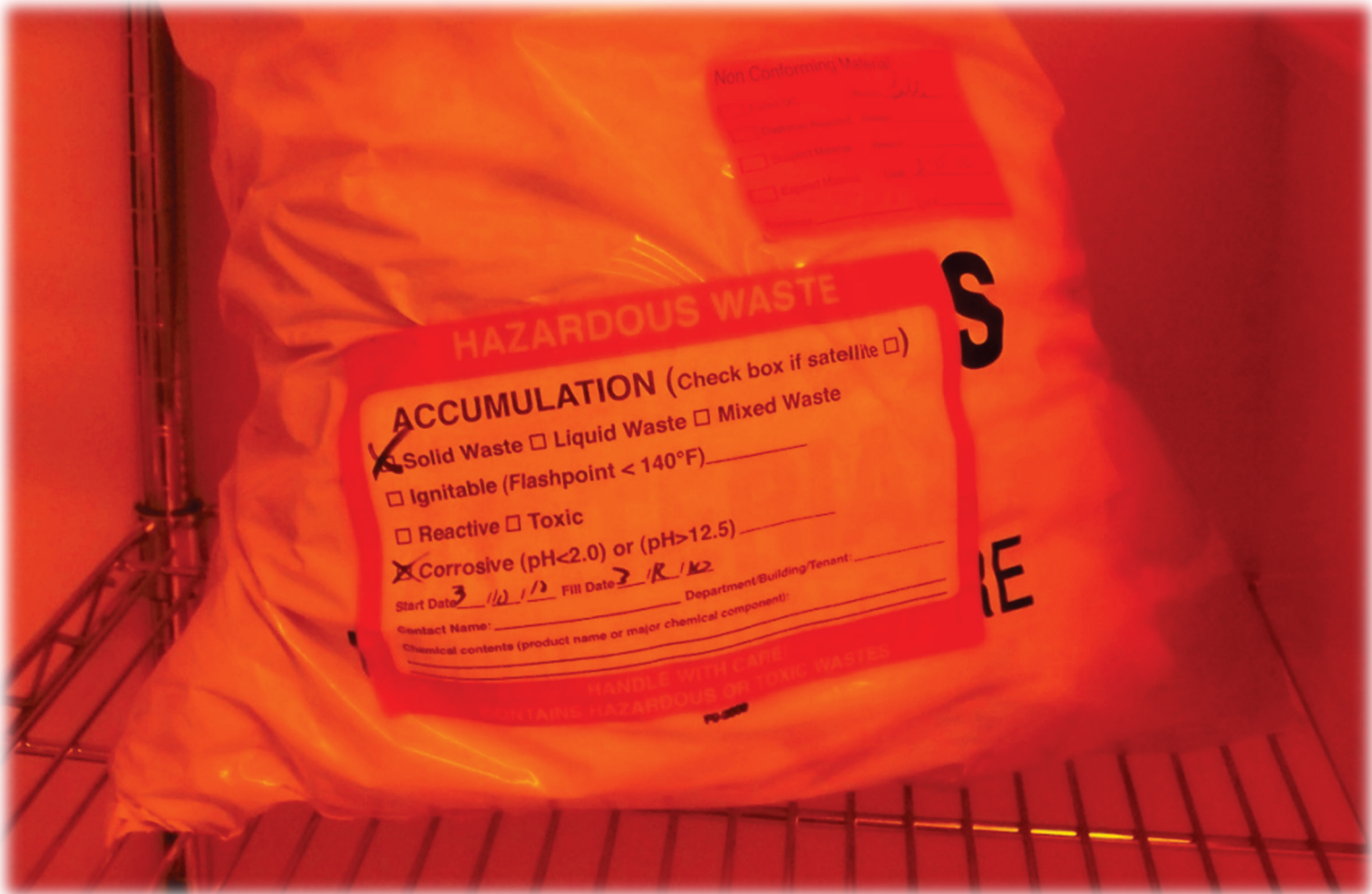


# Empty Container Guidelines

- Empty bottles that once contained flammable/solvents should be placed in dedicated, labeled bins located in:
  - NFN Fab level tool move-in area
  - NFN & NFC Subfab level tool move-in areas
  - NFSX loading dock
  - NFX Fab tool move-in area
  - NFN HPM corridor
- MUST be capped before placing into the correct bin.
- **NowPak** containers should not be placed in bins, must treat them as Hazardous Waste.
- Other trash should not be placed in these bins.



# What's Wrong with this Label?



**No ingredients, pH not circled or written in, no name !**

# Ladder Safety

- Use a ladder only on a stable and level surface
- Always inspect the ladder for damage prior to using it
- Always maintain a 3-point (two hands and a foot, or two feet and a hand) contact on the ladder when climbing
  - Keep your body near the middle of the step and always face the ladder while climbing (see diagram)
- Do not use the top two steps/rungs of a ladder as a step/rung unless it was designed for that purpose
- Do not use a self-supporting ladder (e.g., step ladder) as a single ladder or in a partially closed position

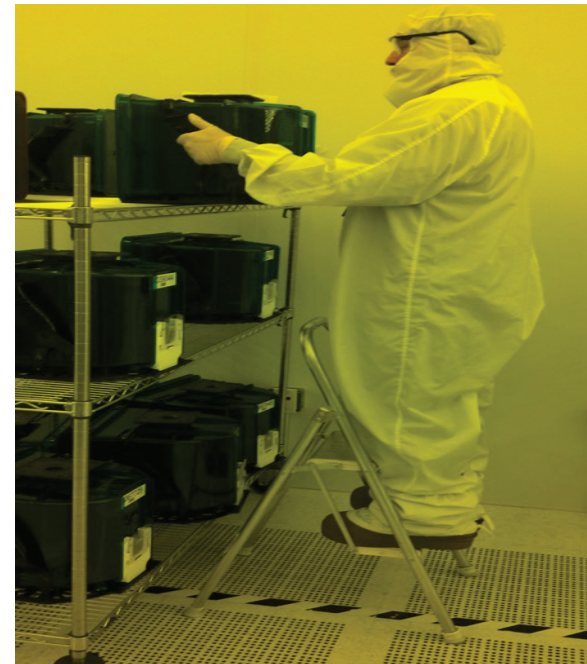
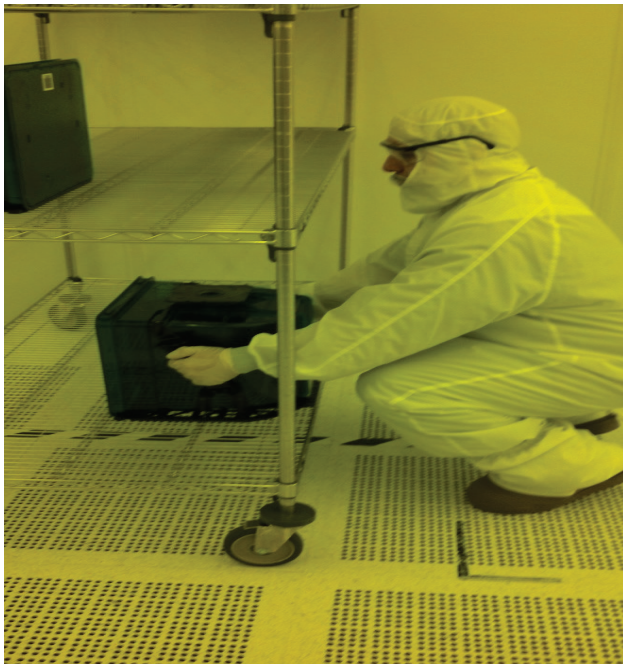


# Ergonomic Lifting Guidelines

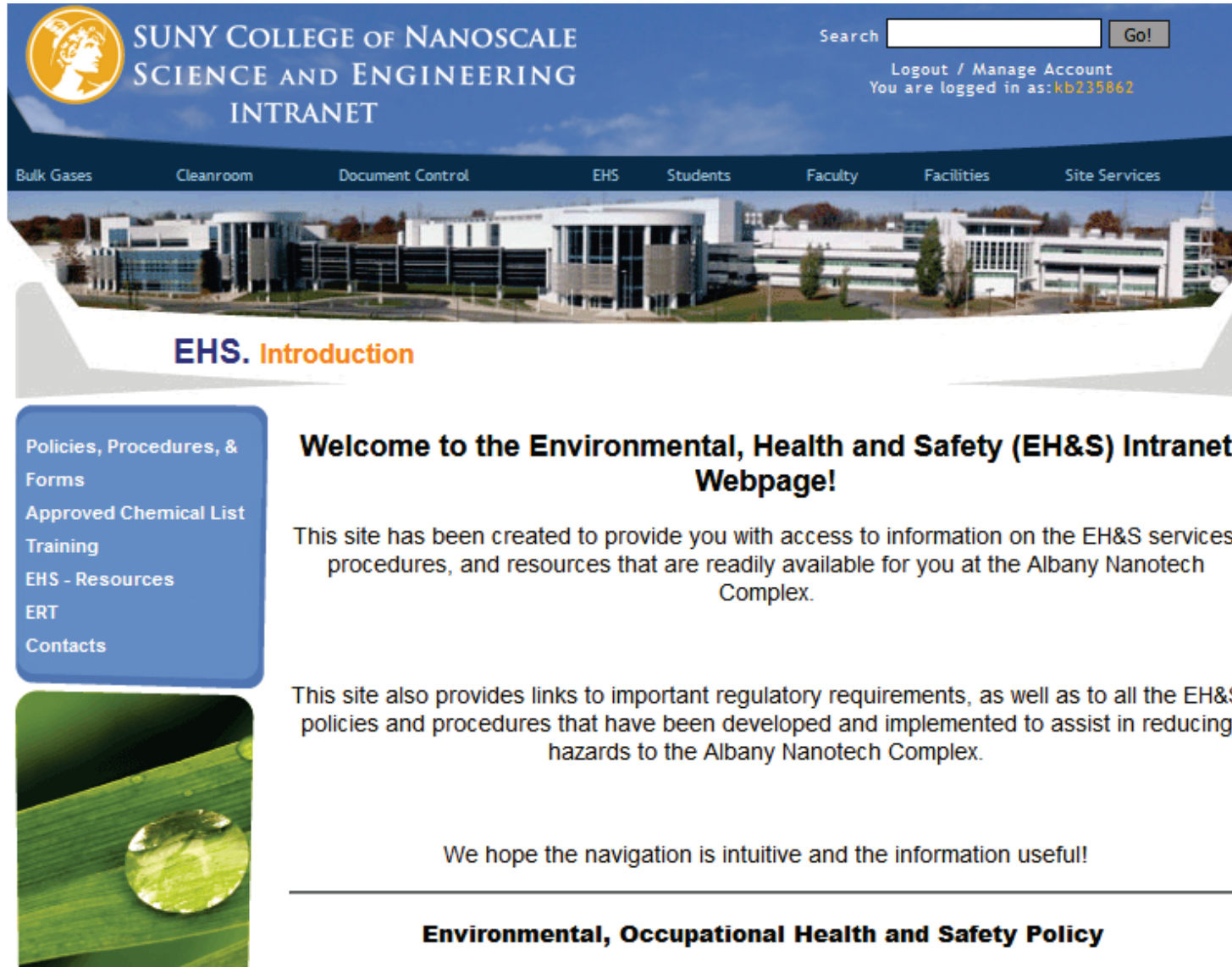
- The safe lifting zone is between the knees and shoulders
- Push items rather than pull them
- Bend at the knees, not the waist
- Keep the load close to the body and use both hands
- DO NOT Twist
- Use a step ladder for all lifts above shoulder height

**Experiencing pain,  
tingling, or numbness in  
extremities, back, or  
neck?**

Contact NYCREATES EHS for  
an ergonomic assessment



# EHS Intranet



The screenshot shows the EHS Intranet homepage for SUNY College of Nanoscale Science and Engineering. The header includes the college logo, a search bar, and user login information. A navigation menu lists various services. The main content area features a welcome message and a list of resources.

**SUNY COLLEGE OF NANOSCALE SCIENCE AND ENGINEERING INTRANET**

Search

Logout / Manage Account  
You are logged in as: kb235862

Bulk Gases Cleanroom Document Control EHS Students Faculty Facilities Site Services

**EHS. Introduction**

**Welcome to the Environmental, Health and Safety (EH&S) Intranet Webpage!**

This site has been created to provide you with access to information on the EH&S services, procedures, and resources that are readily available for you at the Albany Nanotech Complex.

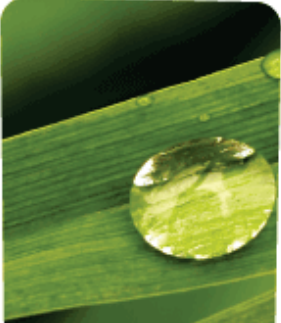
This site also provides links to important regulatory requirements, as well as to all the EH&S policies and procedures that have been developed and implemented to assist in reducing hazards to the Albany Nanotech Complex.

We hope the navigation is intuitive and the information useful!

**Environmental, Occupational Health and Safety Policy**

**Navigation Menu:**

- Policies, Procedures, & Forms
- Approved Chemical List
- Training
- EHS - Resources
- ERT
- Contacts





# SAFETY FIRST

**If you have any questions, contact EHS at  
[SUNYPOLYEHS@sunypoly.edu](mailto:SUNYPOLYEHS@sunypoly.edu)**