

# **Safety Procedures Manual**

## **Semiconductor Manufacturing Facility**

### **Cleanroom Protocol**

#### **Entry Requirements:**

1. Complete cleanroom training certification (annual renewal)
2. Health screening current within 6 months
3. No jewelry, makeup, or loose clothing
4. Hair must be completely covered

#### **Gowning Procedure:**

1. Enter air shower for 15-second cycle
2. Don shoe covers in ante-room
3. Put on cleanroom suit (bunny suit)
4. Secure hood ensuring no hair exposed
5. Don face mask and safety glasses
6. Put on two pairs of gloves (inner latex, outer nitrile)
7. Final inspection in mirror before entry

#### **Cleanroom Classification:**

- Class 100: Wafer fabrication areas - Maximum 100 particles per cubic foot
- Class 1000: Assembly areas - Maximum 1000 particles per cubic foot
- Class 10000: Packaging areas - Maximum 10000 particles per cubic foot

#### **Prohibited Items:**

- Paper products (use cleanroom paper only)
- Cardboard boxes
- Pencils (graphite contamination)
- Personal electronics
- Food or beverages

### **Chemical Safety**

#### **Hazardous Chemical Handling:**

#### **Personal Protective Equipment (PPE) Requirements:**

- Chemical-resistant gloves (check compatibility chart)
- Full face shield or goggles

- Chemical-resistant apron or lab coat
- Closed-toe shoes (steel-toe recommended)

**Common Chemicals Used:****1. Hydrofluoric Acid (HF) - EXTREME HAZARD**

- Use only in designated fume hood
- Calcium gluconate gel must be immediately available
- Never use alone - buddy system required
- Exposure requires immediate emergency response

**2. Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>)**

- Concentrated acid - severe burn risk
- Always add acid to water, NEVER water to acid
- Use in ventilated area only

**3. Acetone**

- Flammable - keep away from ignition sources
- Use in fume hood
- Dispose in approved waste container

**Chemical Spill Response:****Minor Spill (< 1 liter):**

1. Alert nearby personnel
2. Wear appropriate PPE
3. Use spill kit from nearest station
4. Contain with absorbent pads
5. Dispose in hazardous waste container
6. Report to supervisor and complete incident form

**Major Spill (> 1 liter) or HF spill:**

1. Evacuate immediate area
2. Activate emergency alarm
3. Call facility emergency line: x-EMERGENCY (x-3637)
4. Do NOT attempt cleanup
5. Wait for hazmat team

**Emergency Shower/Eyewash Locations:**

- Located every 100 feet throughout facility
- Test monthly (facilities responsibility)
- Must reach within 10 seconds from any chemical use area

## **Equipment Safety**

### **Machine Guarding:**

- All equipment with moving parts must have guards in place
- Never bypass or disable safety interlocks
- Lockout/Tagout required for maintenance

### **Test Equipment Safety:**

- High voltage equipment marked with warning labels
- Only trained personnel may operate
- Verify power is OFF before making connections
- Use one hand when working with live circuits

### **Laser Safety:**

- Class 3B and 4 lasers require safety glasses
- Post laser warning signs when in use
- Never look directly into laser beam
- Reflective surfaces must be controlled

## **Emergency Procedures**

### **Fire Emergency:**

1. Activate nearest fire alarm pull station
2. Evacuate using nearest exit
3. Close doors behind you (do not lock)
4. Proceed to assembly point in parking lot
5. Do NOT re-enter until all-clear given

### **Medical Emergency:**

1. Call x-EMERGENCY (x-3637)
2. Provide: Location, nature of injury, number of injured
3. Stay with injured person if safe to do so
4. Meet emergency responders at entrance

### **Evacuation Assembly Points:**

- North Parking Lot: Buildings 1-3
- South Parking Lot: Buildings 4-6
- Report to your department manager for headcount