



Piranha/HF Hood


Standard Operating Procedure






Section 1: Process Description	1
Section 2: Safety Protocols	1
Potential Hazards	1
Routes of Exposure	4
Personal Protective Equipment Requirements	4
Waste Disposal	5











Section 1: Process Description






Section 2: Safety Protocols

Chemical Hazards



Hazardous Chemical	Hazard Sign	Hazard Statements
Sulfuric acid		May be corrosive to metals Causes severe skin burns and eye damage May cause respiratory irritation

Hydrogen peroxide		<p>May intensify fire; oxidizer Harmful if swallowed or inhaled Causes severe skin burns and eye damage Toxic to aquatic life Harmful to aquatic life with long lasting effects</p>
Hydrofluoric acid		<p>Fatal if swallowed, in contact with skin or if inhaled May be corrosive to metals Causes severe skin burns and eye damage May cause respiratory irritation Corrosive to the respiratory tract</p>
Nitric acid		<p>May intensify fire; oxidizer May be corrosive to metals Causes severe skin burns and eye damage Toxic if inhaled Corrosive to the respiratory tract</p>
Acetic acid		<p>Flammable liquid and vapor Causes severe skin burns and eye damage</p>
Transene BOE 6:1, BOE 20:1 & Buffered HF Improved [contains: hydrofluoric acid; ammonium fluoride]		<p>Fatal if swallowed Toxic if inhaled May be corrosive to metals Causes severe skin burns and eye damage Causes serious eye damage May causes damage to organs (bones) Harmful to aquatic life</p>

		
Transene Titanium Etchant TFT [contains: hydrofluoric acid; surfactant]	  	<p>Fatal if swallowed Toxic if inhaled May be corrosive to metals Causes severe skin burns and eye damage Causes serious eye damage May causes damage to organs (bones) Harmful to aquatic life</p>
Transene AlPad Etch 639 [contains: hydrofluoric acid; ammonium fluoride; acetic acid; propylene glycol]	  	<p>Fatal if swallowed Toxic if inhaled May be corrosive to metals Causes severe skin burns and eye damage Causes serious eye damage May causes damage to organs (bones)</p>
Transene RSE 5:6:3, RSE-100 & RSE-200 [contains: hydrofluoric acid; nitric acid; acetic acid]	  	<p>Fatal if swallowed Toxic if inhaled May be corrosive to metals Causes severe skin burns and eye damage Causes serious eye damage May causes damage to organs (bones, lungs, eyes, mucous membranes) Harmful to aquatic life</p>

Niobium Etchant Nb [contains: hydrofluoric acid; nitric acid]	  	<p>Fatal if swallowed Toxic if inhaled May be corrosive to metals Causes severe skin burns and eye damage Causes serious eye damage May causes damage to organs (bones, lungs, eyes, mucous membranes) Harmful to aquatic life</p>
Transene Nিকেlex [contains:	 	<p>Harmful if swallowed Causes mild skin irritation Causes eye irritation Harmful to aquatic life May cause harm to aquatic life with long lasting effects May cause cancer if swallowed Chronic exposure may cause mutagenicity or reproductive hazards</p>

Physical Hazards

Hazard	Hazard Sign	Hazard Statements
Pressurized gas		Nitrogen guns in the hood are pressurized
Hot Plate		Can cause severe thermal burns

Routes of Exposure

There is a risk of skin or eye exposure when handling chemicals that can be mitigated by wearing proper PPE.

There is an inhalation risk when using chemicals, which must only be opened and handled under a fume hood to reduce or eliminate exposure.

There is a risk of launching objects by spraying them with the nitrogen guns in the hood that can be mitigated by always aiming the nitrogen gun into the hood and away from people.

There is a risk of splattering chemicals by spraying them with the nitrogen guns in the hood that can be mitigated by always aiming the nitrogen gun into the hood and away from people and never directly spraying chemicals with the nitrogen guns.

There is a risk of severe skin burns if a hotplate is touched, which can be prevented by never using tweezers when handling samples on the hotplate and never touching it directly with hands or other body parts. When heating chemicals in glassware on a hotplate, do remove from the hotplate until the hotplate has been turned off and the chemicals have returned to room temperature.

Personal Protective Equipment Requirements

Trionic (tripolymer of nitrile, neoprene and rubber) gloves must be worn over the regular nitrile cleanroom gloves required throughout the cleanroom.

Vinyl apron that covers the entire torso and arms must be worn over the cleanroom suit required throughout the cleanroom. The apron must be securely tied at the back of the neck and around the waste so that it does not hang loosely on the body. The sleeves of the apron must be tucked into the trionic gloves at the forearm such that there is no space between the coverage of the apron and the coverage of the gloves.

Full faceshield must be worn over the cleanroom hood required throughout the cleanroom and any facemask or safety glasses worn by the user. The faceshield must not be raised while handling chemicals and should never be touched with soiled gloves.

Safety glasses should be worn under the faceshield.

Waste Disposal

Dispose of wipes soiled with chemicals in a red hazardous waste bin.

Dispose of personal protective equipment that is damaged or cannot be decontaminated in a red hazardous waste bin.

Dispose of used or failed substrates in a sharps waste container.

Dispose of broken chemical glassware in a sharps waste container.