



# Litho-Development Hood

## Standard Operating Procedure


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## Section 1: Process Description












There are three












## Section 2: Safety Protocols

### Potential Hazards

Hazardous Chemical	Hazard Sign	Hazard Statements
Isopropanol [Isopropyl alcohol; 2-propanol]		Highly flammable liquid and vapor Causes serious eye irritation May cause respiratory irritation May cause drowsiness or dizziness May cause damage to organs through prolonged or repeated exposure

		
Acetone [2-propanone; Dimethyl ketone]	  	<p>Highly flammable liquid and vapor</p> <p>Causes serious eye irritation</p> <p>May cause drowsiness or dizziness</p> <p>May cause damage to organs through prolonged or repeated exposure</p> <p>Repeated exposure may cause skin dryness or cracking</p>
Methanol [Methyl alcohol]	  	<p>Highly flammable liquid and vapor</p> <p>Causes damage to organs (eyes/central nervous system)</p> <p>Toxic if swallowed, in contact with skin or if inhaled</p>
SU-8 Developer [PGMEA; Propylene glycol methyl ether acetate; 1-methoxy-2-propanol acetate]	  	<p>Flammable liquid and vapor</p> <p>May cause drowsiness or dizziness</p> <p>May damage fertility or the unborn child</p>

Methyl isobutyl ketone [MIBK; 4-methyl-2-pentanone]	  	<p>Highly flammable liquid and vapor</p> <p>Causes serious eye irritation</p> <p>Harmful if inhaled</p> <p>May cause drowsiness or dizziness</p> <p>Suspected of causing cancer</p>
Amyl acetate [Pentyl acetate]	 	<p>Flammable liquid and vapor</p> <p>Causes serious eye irritation</p> <p>May cause respiratory irritation</p>
o-Xylene [ortho-xylene; 1,2-dimethylbenzene]	  	<p>Flammable liquid and vapor</p> <p>Harmful if inhaled</p> <p>May be fatal if swallowed and enters airways</p> <p>Harmful in contact with skin</p> <p>Causes skin irritation</p> <p>Causes serious eye irritation</p> <p>May cause respiratory irritation</p> <p>Suspected of causing cancer</p> <p>May cause damage to organs (central nervous system, liver, kidneys) through prolonged or repeated exposure</p>
Anisole	 	<p>Flammable liquid and vapor</p> <p>May cause drowsiness or dizziness</p> <p>Harmful to aquatic life</p>
Surpass 3000		<p>May causes skin irritation</p> <p>May cause respiratory irritation</p>

Cyclopentanone	 	Flammable liquid and vapor Causes skin irritation Causes serious eye irritation
Chlorobenzene	  	Flammable liquid and vapor May causes skin irritation Harmful if swallowed Toxic to aquatic life with long lasting effects
Toluene [Toluol]	  	Highly flammable liquid and vapor May be fatal if swallowed and enters airways Causes skin irritation Causes serious eye irritation May cause drowsiness or dizziness Suspected of damaging fertility or the unborn child May cause damage to organs (central nervous system) through prolonged or repeated exposure
Chlorotrimethylsilane	  	

## 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.

## Personal Protective Equipment Requirements

Users must be wearing the nitrile cleanroom gloves required throughout the cleanroom at all times. It is also recommended that users wear a second pair of gloves over the first pair. Chemicals may splash onto gloves, which could lead to contaminating other equipment in the cleanroom if gloves are not changed after using chemicals. Wearing a second pair of gloves makes it easier to remove, dispose of and replace soiled gloves.

Safety glasses are required when using the litho-development hood.

## Waste Disposal

There are three chemical waste slots in the back of the solvents/lift-off hood that drain to stainless steel carboys under the hood. All regular solvents, such as isopropanol, acetone, methanol, ethanol, toluene, and NMP (Remover PG) should go into the carboys. Any of these solvents can go into any of the three carboys in spite of the labeling above them.

Caustic based developers that contain TMAH, potassium borate or sodium hydroxide, such as chloroform, must be disposed of in a waste bottle and stored in the chemical waste cabinet in the lithography bay. The waste bottle must be labelled with the full names of the chemical contents, meaning no abbreviations or tradenames are to be used on the label. Generally, there should already be a waste bottle set up in the waste cabinet for halogenated solvents.

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

Dispose of any used pipettes or swabs in the sharps waste container.

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

Dispose of broken chemical glassware in a sharps waste container.