



Solvents/Lift-Off Hood

Standard Operating Procedure



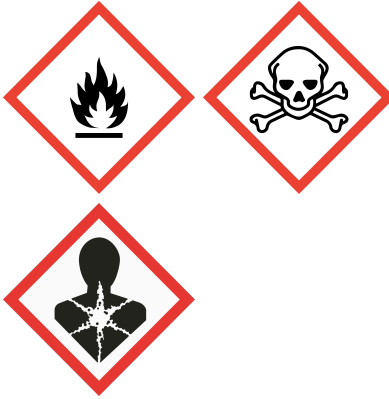
Section 1: Process Description	1
Section 2: Safety Protocols	2
Potential Hazards.....	2
Routes of Exposure.....	4
Personal Protective Equipment Requirements.....	4
Waste Disposal.....	4










Section 1: Process Description

The Solvents/Lift-Off Hood is an Air Control stainless steel fume hood designed for non-corrosive chemical work. Located in the metrology bay of the cleanroom, this hood is designated for solvents only and is to be used for cleaning substrates and other samples with solvents and performing post-deposition or post-etch lift-off of photo- and EBL-resists. There are two sonicator tanks built into the hood that can be used to assist with cleaning or lift-off processes. DI water and dry nitrogen guns are available in the hood for rinsing and blowing dry samples and glassware. Squeeze bottles of isopropanol, acetone and methanol are also available in the hood to be used for rinsing samples. A rack of glassware designated for use in the solvents/lift-off hood only is located near the hood, though users may also bring their own glassware to be used in the hood if so desired. There are three stainless steel carboys located in the hood for disposal of most solvents used in the hood, though any halogenated solvents used in the hood must be disposed of into a separate waste container.

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]		Highly flammable liquid and vapor Causes serious eye irritation May cause drowsiness or dizziness May cause damage to organs through prolonged or repeated exposure Repeated exposure may cause skin dryness or cracking
Methanol [Methyl alcohol]		Highly flammable liquid and vapor Causes damage to organs (eyes/central nervous system) Toxic if swallowed, in contact with skin or if inhaled

Remover PG [NMP; N-methylpyrrolidinone; N-methyl-2-pyrrolidone]	 	Combustible liquid Causes skin irritation Causes serious eye irritation May cause respiratory irritation May damage fertility or the unborn child May cause damage to organs through prolonged or repeated exposure
Ethanol [Ethyl alcohol]	 	Highly flammable liquid and vapor Causes serious eye irritation
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
Chloroform [Trichloromethane]	 	Harmful if swallowed Toxic if inhaled Causes skin irritation Causes serious eye irritation Suspected of causing cancer Suspected of damaging fertility or the unborn child May cause respiratory irritation May cause drowsiness or dizziness May cause damage to organs (liver, kidney) through prolonged or repeated exposure

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

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 solvents 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.

Halogenated solvents, 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.

The sonicator tanks in the hood also drain into the carboys, so if the tank is filled with solvents, it can be drained using the drain controls.

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.