

NATIONAL UNIVERSITY OF SINGAPORE

Doc no: CIBA/RA/Exp/012		Experiment - Based Risk Assessment Form	
Name of Department	<u>Physics</u>	Location of Lab	<u>S7-01-01,01A,07,08,09,16; S11-02-09</u>
Name of Laboratory	<u>All CIBA laboratories</u>	Name of PI	<u>Prof Frank Watt</u>
Name of Researcher/LO	<u>All CIBA users</u>	Name of Activity/Experiment	<u>General Laboratory works</u>

No	Description/Details of Steps in Activity	Hazards	Possible Accident / Ill Health & Persons-at-Risk	Existing Risk Control (Mitigation)	Severity	Likelihood (Probability)	Risk Level	Additional Risk Control	Person Responsible	By (Date)
1	Common procedures on handling of chemical, e.g. refill of wash bottle (IPA, Acetone); transferring chemical from storage cabinet from S7-01-01 to 09; Disposal of waste chemicals.	1) Chemical Spillage	1) Hazardous in case of inhalation of organic vapor	1) Wear gloves, mask, and proper PPE when working with chemicals 2) Wash bottles refill in fumehood that located in chemistry lab. 3) Emergency chemical spill kits are placed next to the flammable cabinet in major lab, S7-01-01 and chemistry lab, S7-01-09. 4) Sharp bins are in all major lab area, e.g. chemistry lab, photonics lab, etc 5) Separate waste storage area for flammable chemicals and broken glassware.	1	1	1			
2		2) Skin and Eye irritant;	2) Hazardous in case of inhalation of organic vapor		1	1	1			
3		3) Glass breakage, sharp objects	3) Eye or skin contact of solution spilled out may cause injury		1	1	1			
4		4) Flammable organic	4) Flame from organic vapor		1	1	1			
5	BNC power cables in CIBA's accelerator (e.g. for 10,30,45 degree beam lines connect with detectors)	Electrical hazard	Potential tripping, falling and 'snap' open the membrane base of cable	1) User must tidy up all cables after each experiment. 2) BNC power isolating cable Protector (for 2 or 3 separate compartments in 1 solid cable protector.	1	2	2			
6					1	1	1			
7	Use of gas cylinder: transportation and usage (e.g gas that CIBA using are Sulphur hexaFluoride, Nitrogen and Helium)	1. Pressurised gas cylinders are very heavy - up to 80 kilos- and unstable objects and as such can present considerable danger to those handling them	1. a falling cylinder .	1. Cylinder trolleys to be supplied for transport. Secure racks for storing. Gas line installation is undertaken only by trained staff: lines to be leak tested before commissioning and inspected/tested at suitable intervals thereafter. 2. Siting: Cylinders are to be kept in suitable racks or stations outside laboratories, they are kept in suitable, secure racks within laboratories or, in exceptional circumstances, secured in cylinder trolleys. CYLINDERS MUST NEVER BE LEFT FREESTANDING.	1	2	2			
8		2. Gas cylinder valves are very robust and difficult to break. However gas pressure regulators are much less robust and if damaged may allow the catastrophic escape of gas.	2. incorrect fitting of the pressure regulator allowing the escape of gas		1	1	1			
9	Handling with Liquid Nitrogen (Maintain ultra low temperature for 30 degree beamline's detector) Property of liquid Nitrogen: A colourless, odourless liquid; Nitrogen gas is evolved which is neither toxic and harmful; Boiling point is -196oC.	Asphyxiation and cold burns (Note also that the vapour from liquid nitrogen is denser than air, so even if the overall concentration in a room is safe, there could be a higher N2 and lower O2 concentration at floor level.)	Cryogenic burns; Frostbite; Hypothermia	Only trained workers should decant and work with liquid nitrogen; PPE (e.g: Face masks, cryo-gloves, laboratory coats) have to be wore; Slow gas release;	1	1	1			

Conducted By Chan Sook Fun

Approved By

Name Prof Frank Watt

Signature _____

Approval date 12-Apr-10

Next Revision date 12-Apr-13
(Maximum 3 years)