

## **TIER I CHEMICALS:**

**1.LIST**

**2.LABORATORY SAFETY PLAN**

**3.SPECIFIC RISK ASSESSMENT WORKSHEETS**

**4.TRAINING RECORD**

**5.MSDS**

# LIST & REQUIREMENTS

Georgia Tech Tier I chemicals listed below are identified as highly hazardous and/or reactive chemicals. The list of dangerous gases can be found in the GT's dangerous gas safety manual (<http://ehs.gatech.edu/chemical/dangerousGasSafetyProgram.pdf>)

To safely handle Tier I chemicals, GT requires that each laboratory prepared (i) tailored laboratory safety plan, (ii) chemical-specific risk assessment worksheet with MSDS. The chemicals listed below require.

<b>Tier I List</b>			
Chemical	CAS #	Chemical	CAS #
<b><u>Pyrophoric Solids and Liquids</u></b>		<b><u>Self-Heating Substances</u></b>	
Barium Alloys	7440-39-3	aluminum borohydride	16962-07-5
bis(dimethylphosphino)methane	64065-08-3	Carbon, activate	7440-44-0
Calcium dithionite	15512-36-4	Celluliod, scarp	8050-88-2
Cyclopentylmagnesium bromide	33240-34-5	Hafnium powder, dry	7440-58-6
Dichlorosilane	4109-96-0	Magnesium Diamide	7803-54-5
Diethylaluminum chloride	96-10-6	Maneb	12427-38-2
Diethylboron methoxide	7397-46-8	Pentaborane	19624-22-7
Digermane	13818-89-8	p-Nitrosodimethylaniline	138-89-6
Dimethylzinc	544-97-8	Potassium hydrosulphite	14293-73-3
Disilane*	1590-87-0	Potassium Sulphide	1312-73-8
Germane	7782-65-2	Sodium Dithionite	7775-14-6
Methylithium	917-54-4	Sodium Hydrosulphide	16721-80-5
n-Butyllithium	109-72-8	Sodium Sulphide	1313-82-2
Phenyllithium	591-51-5	tert-Butyl hypochlorite	507-40-4
Phosphine*	7803-51-2	Titanium Disulphide	12039-13-3
rubidium	7440-17-7	Titanium Powder, Dry	7440-32-6
sec-Butyllithium	598-30-1	Xanthates	151-01-9
Silane	7803-62-5	Zinc Powder	7440-66-6
sodium methylate	124-41-4	Zirconium powder, Dry	7440-67-7
tert-Butyllithium	594-19-4		
Titanium trichloride	7705-07-9		
Tributylphosphine	998-40-3		
Triethylaluminum	97-93-8		
Triethylborane	97-94-9		
Triisobutylaluminum	100-99-2		
Trimethylaluminum	75-24-1		
Tri-n-butylborane	122-56-5		
white or yellow phosphorus	7723-14-0		

# Laboratory Safety Plan

This Laboratory Safety Plan is specific to lab \_\_\_\_\_.

Contact Information:

Primary Contact:	
Phone day/night:	
Department:	Chemistry and Biochemistry

**Inventory:** The following **extremely hazardous materials** are used and/or stored in this lab:

Name	CAS	Hazard

**Material Safety Data Sheets:** are attached to this document but can also be found on [www.chematix.gatech.edu](http://www.chematix.gatech.edu) and [www.hazard.com](http://www.hazard.com)

## PERSONAL PROTECTIVE EQUIPMENT

- Safety glasses
- Lab coat
- Gloves when handling chemicals

## LABORATORY GENERAL OPERATING PROCEDURES

### **Before starting an experiment:**

- A written procedure with a hazard assessment must be approved in writing by the PI supervising the research.
- The persons carrying out the experiment must have received training in the safe use of the equipment and facilities.
- All people must wear appropriate personal protective equipment. As a minimum this consists of: safety glasses, a lab coat and any gloves identified in the specific procedure.
- The approved procedure, hazard assessment and copies of the MSDS for materials that are being used must be printed and posted outside the laboratory.

### **When experiments are conducted:**

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### **At the end of an experiment:**

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# EMERGENCY PROCEDURES

## Contacts:

Name	Phone Numbers Day/Night

## In case of HOOD FAILURE DURING AN EXPERIMENT

○

## In case of POWER FAILURE DURING AN EXPERIMENT

○

## In case of leak or alarm:

- LEAVE the laboratory while SHOUTING “EVACUATE” to lab-mates
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## In case of a FIRE:

- Pull the fire alarm on your way out of the building
- Call 404-894-2500
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## If chemical exposure occurred:

- Remove the victim to fresh air & call GT Police (404-894-2500)
- Have them remove all contaminated clothing and shower in an emergency shower for 15 minutes & call GT Police (404-894-2500)
- Have them rinse their eyes in an eyewash for 15 minutes & call GT Police (404-894-2500)
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When calling GT Police, provide the following information:

- I am on the Georgia Tech Campus
- The Street Address of this Building is \_\_\_\_\_
- My room number is \_\_\_\_\_
- Describe the nature of the emergency: e.g. *Spill with human exposure, Electrocution, Large spill without human exposure, seizure etc..*
- Tell them if you think you will need an ambulance

- If the chemical is known, print out 4 copies of the MSDS, one for the Victim, one for First Responders, One for Ambulance Crew, One for the police/EHS
- Give this sheet and one MSDS to the ambulance crew
- Do not transport the victim yourself
- EH&S Recommends that all chemical exposure cases go to Grady Hospital

**If no chemical exposure occurred:**

- Go to the group assembly point: \_\_\_\_\_

# LABORATORY LAYOUT

## ENGINEERING CONTROLS

Engineering Controls installed in the lab to prevent chemical exposures include:

- 1-
- 2-
- 3-
- 4-
- 5-



## Risk Assessment Forms

PI:		Department: Chemistry & Biochemistry	
Location:		Room:	
Chemical:		Cylinder Volume: Container Volume / Wt	
Chemical		Formula:	CAS:
<b>Specific hazard: Toxic</b> <input type="checkbox"/> <b>Corrosive</b> <input type="checkbox"/> <b>Highly Reactive</b> <input type="checkbox"/> <b>Pyrophoric</b> <input type="checkbox"/> <b>Other</b> <input type="checkbox"/>			
<b>Reaction Brief Description: N/A.</b>			
Process designed by:		Approved By PI:	
Date:		Date:	
<b>Training requirements for this procedure:</b>  <b>Special training:</b>		<input type="checkbox"/> <b>Review of MSDS</b> <input type="checkbox"/> <b>Review of Laboratory Safety Plan</b> <input type="checkbox"/> <b>Review of GT Dangerous Gas Alarm Procedures (Appendix D)</b> <input type="checkbox"/> <b>Special Training from the lab PI/supervisor</b> <input type="checkbox"/> <b>Other</b> <input type="checkbox"/> <b>Special Training/Fit Testing for Respirator Use</b>	
<b>Personal protective equipment (PPE) requirements</b>  <b>Type of gloves:</b>		<input type="checkbox"/> <b>Safety Glasses or Goggles (circle one)</b> <input type="checkbox"/> <b>Lab Coat Cotton (OR) Flame Resistant</b> <input type="checkbox"/> <b>Face Shield</b> <input type="checkbox"/> <b>Apron (specify type)</b> <input type="checkbox"/> <b>Chemically Resistant Gloves</b> <input type="checkbox"/> <b>Thermally protective gloves</b> <input type="checkbox"/> <b>Respirator</b> <input type="checkbox"/> <b>Other (Specify)</b>	

### Hazard Assessment Worksheet

<b>Sequence of Steps</b>	<b>Potential Accidents or Hazards</b>	<b>Preventative Measures</b>

<b>Specific Training required for this procedure</b>		
<b>MSDS Reviews Required for this Procedure</b>		



# MSDS