

Principal Investigator: \_\_\_\_\_




Date Approved: \_\_\_\_\_

This document covers basic chemical safety information for alkylphosphines. The use of any alkylphosphines is subject to pre-approval by the Principal Investigator (PI) and/or Supervisor. PI and/or Supervisor may use the sheet attached to this SOP to document any lab specific training for Alkylphosphines. **DO NOT USE ALKYLPHOSPHINES UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL.**

## Alkylphosphines

Alkylphosphines are commonly used as ligands, catalysts, and reagents in organic synthesis. Alkylphosphines are generally stronger as bases and nucleophiles than arylphosphines, and therefore tend to be more reactive. Due to their greater reactivity, alkylphosphines are often classified as either pyrophoric or self-heating substances. In order to prevent fires, and to preserve reagents, alkylphosphines should be handled under inert atmosphere. Alkylphosphines are also corrosive, capable of destroying living tissues.



Personal Protective Equipment & Personnel Monitoring		
 <b>Lab Coat</b>	 <b>Gloves</b>	 <b>Eye Protection</b>
Flame resistant lab coat. Wear a chemical-resistant apron if working with large amounts.	If used outside of a glove box, fire-resistant hand protection (e.g. chloroprene gloves over flame-resistant glove liners).	ANSI Z87.1-compliant safety glasses or safety goggles if a splash hazard is present

## Labeling & Storage

Store alkylphosphines in a flammable storage cabinet with self-closing hinges or in a refrigerator rated for flammable storage. Primary containers should be labeled according to the UNC Charlotte Chemical Hygiene Plan. The secondary container's label must contain the chemical name and corresponding hazards. All alkylphosphines must be stored away from combustible materials, oxidizing acids, and oxidizers. Containers holding alkylphosphines must be stored below eye level. Also, if not plainly visible (e.g. through a cabinet window), labeling must be applied to storage locations where these are stored to avoid an inadvertent encounter.

## Cautions & Considerations

Use and store pyrophoric (autoignition temperature less than 55 °C or 130 °F) alkylphosphines only in fully-sprinklered buildings.

## **Engineering Controls, Equipment & Materials**

### ***Glove Box***

A glove box provides the greatest protection when working with alkylphosphines and helps protect the material from degradation.

### ***Fume Hood***

If you have any reason to believe that your protocol may generate fugitive toxic gases (e.g. an open system which terminates outside of a fume hood or other exhausted enclosure), contact EHS to determine whether alternative engineering controls and/or additional respiratory protection is warranted.

## **Housekeeping**

### ***Spills***

If an alkylphosphine spills in a glove box, absorb the spill with a non-combustible absorbent. Deposit into an airtight double bag and dispose as hazardous solid waste.

If an alkylphosphine spills outside of a glove box and ignites, a dry chemical Class B or a Class D fire extinguisher may be used to extinguish a small fire. NOTE: Any use of a fire extinguisher must be reported to the UNC Charlotte EHS department by calling 704-687-1111. If you do not feel comfortable using a fire extinguisher, Call 911.

If an alkylphosphine spills outside of a glove box and does not ignite, cover the spill with a non-combustible absorbent. Pour dilute (~3%) aqueous hydrogen peroxide over the absorbent. When no bubbling is observed upon agitation, measure the pH and follow your protocol for neutralizing and cleaning an acidic or basic spill, as appropriate. If you do not feel comfortable cleaning any spill, Call 911.

### ***Waste***

Refer to the UNC Charlotte Chemical Hygiene Plan for details.

## **First Aid & Emergencies**

### ***Fire***

Use a dry chemical Class B, or a Class D, fire extinguisher.

### ***Skin or Eye Contact***

Remove contaminated clothing and accessories; flush affected area with water. If symptoms persist, get medical attention.

### ***Inhalation***

Move person into fresh air. If symptoms persist, get medical attention.

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Name	Signature	Date