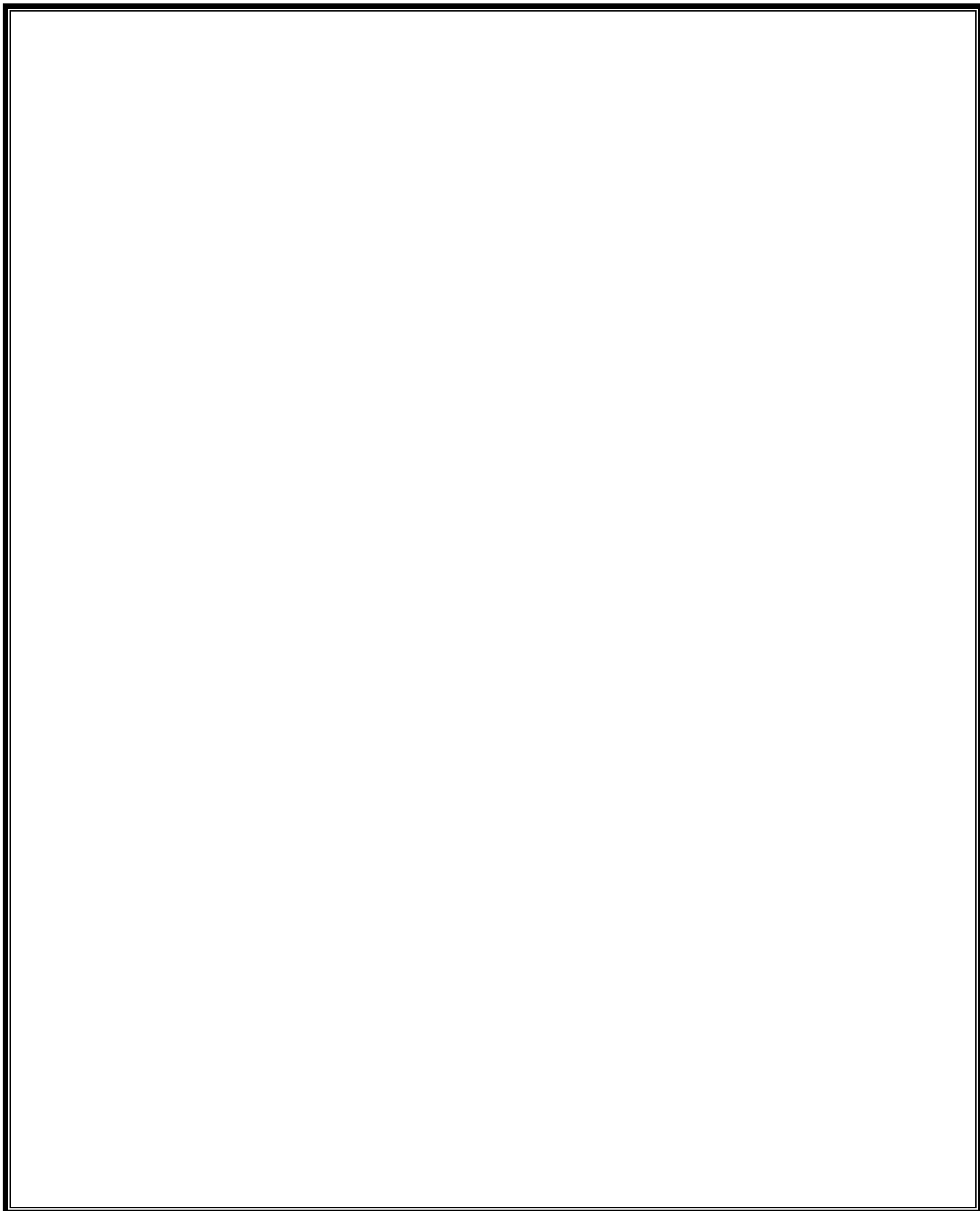


SMU EHS Standard Operating Procedure for use of PEROXIDE-FORMING MATERIALS

See classes and examples of common peroxide formers on page 3.

HAZARDS	Potential Hazards	<ul style="list-style-type: none"> Some peroxide-forming materials can form explosive peroxide crystals during storage; these may be sensitive to shock, friction, heat, and/or light. Other compounds in this class can form peroxides capable of initiating violent polymerization reactions. Many peroxide-forming materials are flammable. See Flammables SOP. See Safety Data Sheet (SDS) for specific hazard information. 	
HAZARD CONTROLS	Selection and Purchase	<ul style="list-style-type: none"> If possible, substitute with a chemical that does not form peroxides. If possible, purchase peroxide-formers with an inhibitor. Purchase the smallest containers; plan to use within safe timeframe. Write date received and date opened on the container. 	
	Storage and Transportation	<ul style="list-style-type: none"> Store in a cool location away from heat and light in sealed airtight containers with tight-fitting nonmetal lids. If class A or B (or if indicated by SDS), store under nitrogen or argon. Contact EHS immediately if any evidence of crystallization 	
	Engineering Controls	<ul style="list-style-type: none"> Use a blast shield if there is a possibility of vigorous reaction or explosion. Use under a fume hood when an inhalation hazard is anticipated. 	
	Work Practice Controls	<ul style="list-style-type: none"> Never force open a rusted or stuck cap. Never open a dented container. Use the smallest practical quantities for the work being performed. Follow instructions on page 3 for evaluating peroxide formers. Do not distill unless absence of peroxides has been shown. Do not allow to evaporate; leave 10 – 20% residual in container. 	
	Personal Protective Equipment (PPE)	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> Minimum PPE: <ul style="list-style-type: none"> Fastened lab coat Safety glasses Appropriate gloves </td> <td style="width: 50%; vertical-align: top;"> For risk of explosion or vigorous reaction: <ul style="list-style-type: none"> Chemical splash goggles and face shield Flame-resistant lab coat Heavy gloves (consider flame-resistant gloves) </td> </tr> </table> <p><i>Consult the manufacturer's glove guide for effectiveness with the chemical.</i></p>	Minimum PPE: <ul style="list-style-type: none"> Fastened lab coat Safety glasses Appropriate gloves
Minimum PPE: <ul style="list-style-type: none"> Fastened lab coat Safety glasses Appropriate gloves 	For risk of explosion or vigorous reaction: <ul style="list-style-type: none"> Chemical splash goggles and face shield Flame-resistant lab coat Heavy gloves (consider flame-resistant gloves) 		
OTHER	Waste	Collect and store according to SMU Hazardous Waste guidelines.	
	Training	Sign Laboratory Specific Training document to indicate understanding of this SOP.	
	Questions	Contact Environmental Health and Safety at 214-768-2430.	
	Additional Guidelines	Please complete page 2 for additional laboratory-specific guidelines	

Laboratory-specific chemicals and procedures:

A large, empty rectangular box with a black border, occupying most of the page below the text. It is intended for the user to list laboratory-specific chemicals and procedures.

Peroxide-Forming Chemicals



Peroxide Testing

- Peroxide-forming chemicals should be used or disposed of prior to the expiration date. If extenuating circumstances exist for keeping the chemical, routine testing is necessary.
- Visually inspect containers for crystal formation or cloudiness before opening. If either of these conditions are observed, **DO NOT OPEN and ALERT EHS**.
- Never open or test containers of unknown origin or age, or those that have evidence of peroxide formation
- Test strips are available from EHS.
- Any chemical that tests greater than 100 ppm should be labeled as containing peroxides; please contact EHS for disposal assistance.
- All test results should be recorded directly on the container.
- Refer to **TABLE A** for testing or disposal frequency.

TABLE A

Classification	Dispose or Test After
Unopened containers	18 months
Opened Containers:	
List A	3 months
List B	12 months
List C uninhibited	24 hours
List C inhibited	12 months
List D	12 months



LABEL

PEROXIDE-FORMING CHEMICAL

Date Received 10/15/2012 Date Opened 10/26/2012
 Date/Test Results 1/26/2013 – 25ppm
 Date/Test Results 4/26/2013 – 45ppm
 Date/Test Results _____
 Date/Test Results _____
 Date/Test Results _____
 Date/Test Results _____

Certain chemicals can form dangerous peroxides upon exposure to air and light. Peroxides may **detonate with extreme violence** when concentrated by evaporation or distillation, when combined with other compounds, or when disturbed by unusual heat, shock or friction. Formation of peroxides is accelerated in opened and partially emptied containers.

List A – form peroxides without concentration by evaporation or distillation

Butadiene	Chloroprene
Divinylacetylene	Isopropyl ether
Tetrafluoroethylene	Vinylidene Chloride

List B – form explosive levels of peroxides upon concentration by evaporation or distillation

Acetal	Acetaldehyde
Benzyl Alcohol	2-Butanol
Cumene	Cyclohexanol
2-Cyclohexen-1-ol	Decahydronaphthalene
Cyclohexene	Diacetylene
Dicyclopentadiene	<i>Diethyl Ether</i>
Diglyme	<i>Dioxanes</i>
Glyme	4-Hepitanol
2-Hexanol	Methyl Acetylene
3-Methyl-1-butanol	Methyl Isobutyl Ketone
Methylcyclopentane	4-methyl-2-pentanol
2-Pentanol	4-Pentene-1-ol
1-Phenylethanol	2-Phenylethanol
<i>2-Propanol</i>	<i>Tetrahydrofuran</i>
Tetrahydronaphthalene	<i>Vinyl Ethers</i>
<i>Other Secondary Alcohols</i>	

List C – autopolymerize as a result of peroxide accumulation

Acrylic Acid	Acrylonitrile
Butadiene	Chloroprene
Chlorotrifluoroethylene	Methyl Methacrylate
Styrene	Tetrafluoroethylene
Vinyl Acetate	Vinylacetylene
Vinyl Chloride	Vinylpyridine
Vinylidene Chloride	

List D – do not fall into the above categories, but require special handling nonetheless. Contact EHS for a more extensive list.

Acrolien	Ethyl Vinyl Ether
Furan	Limonene

EHS Contact Information

Main: 214-768-2083
 Brandon Chance: 214-768-2430 (o) 469-978-8664 (c)
 Heather McClary: 214-768-2464 (o) 214-477-2772 (c)