



Owner C.H.O	DOC. NO. SOP	REV. 2	DATE Dec 16, 2019
DOC. TITLE <b>SOP FOR STRONG OXIDIZERS</b>			

Environmental Health & Safety

## **STANDARD OPERATING PROCEDURES (SOP) FOR WORKING WITH STRONG OXIDIZERS AT AMHERST COLLEGE**

### **General Information**

Oxidizers are chemicals that promote or support the burning of fuels by increasing available oxygen levels. They can be solids, liquids, or gases, and are capable of causing explosive mixtures when mixed with combustible, organic, or easily oxidized materials.

Oxidizers can be organic (eg. benzoyl peroxide) or inorganic (hydrogen peroxide, oxygen cylinder) and is often used in the laboratory to remove electrons from other reactants during a RedOx reaction. In industry, Oxidizers are an important ingredient in propellants that release oxygen to enable the combustion of a fuel.

Note that oxidizers may also be characterized by other hazards, hence, users of these chemicals may also need to refer to other SOPs that cover other hazards. In addition, each individual chemical's Safety Data Sheet (SDS) should be consulted before they are used.

See the "Appendix" page below for a list of common Oxidizers used at Amherst College

### **Personal Protective Equipment**

When working with Oxidizers, the following personal protective equipment (PPE) **must** be worn, at a minimum. Depending on the specific chemical, other forms of protection might be required. Consult the SDS for each chemical before use:

Splash goggles

Lab coat

Long pants

Close toed shoes

Gloves – The type of gloves required depends on the specific chemical (consult the SDS)

### **Safety Devices**

Fume hood – always work with Oxidizers in a fume hood, except for those that require the use of a glove box



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Identify the location of all the safety devices in the room before starting your procedure. Also, familiarize yourself with all the possible means of egress.

### Specific Health Hazards

The Permissible Exposure Limits (PEL) for oxidizers are specific to each individual chemical. Review the SDS before using each chemical.

Symptoms of Oxidizers range from minor burns to headaches and shortness of breath to having adverse effects on specific organs and organ systems.



Pictogram:

All Oxidizers are characterized by the “oxidizing agent” hazard; however, some of these chemicals might also be characterized by additional hazards.

Again, consult the SDS for more information about a specific chemical

### Possible Routes of Entry

Inhalation, eye/skin contact, ingestion

**If *any part of your body* comes in contact with an Oxidizer, call the Amherst College Emergency phone number 413-542-2111. Also call this number if you begin to feel ill after working with or in the vicinity of oxidizers**

#### *Inhalation*

If inhaled, move to fresh air, and get help. if you begin to feel ill during / after working with Oxidizers, Call the Amherst College Police Department (ACDP) at x2111 to report it

#### *Eye contact*

Use eyewash to flush eyes with water for at least 15 minutes

#### *Skin Contact*

Wash skin with plenty of water for 15 minutes. Use safety shower, if needed.

#### *Ingestion*

Do not induce vomiting



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Environmental Health & Safety

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### Storage and Special Handling

Store Oxidizers in a tightly closed container, in a cool, dry place, such as a vented cabinet. Some Oxidizers might be more stable when stored in a refrigerator

**Store away from flammables**, organic compounds, reducing agents

Do not store on wooden cabinet or wooden shelf

#### *Special Handling*

Consult SDS for special handling procedures

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### Spill clean up

Do not attempt to clean up a spill of any kind unless you are comfortable

If a spill of less than 100ml occurs, use absorbent spill pad (found in spill kit) or paper towel to absorb the liquid. Rinse the surface with water after absorption. Appropriate personal protective equipment must be worn while cleaning up the spill. Clean-up materials should be placed in a waste container dedicated to Oxidizers only.

If the spill is more than 100ml:

Alert everyone in the area

Leave the room and close the door behind you

Call Jason Williams (Chemical Hygiene Officer) or The Amherst College emergency number (x2111) to report it

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### Disposal

Disposable pipets, pipet tips, and any other disposable devices that come into contact with Oxidizers may be disposed of in the regular trash, provided that they are dry and not grossly contaminated.

Waste containing Oxidizers shall not be mixed with any other type of waste. If your waste is characterized by more than one hazard, dispose of it by itself.

Contact the Chemical Hygiene Officer if you have questions regarding the disposal of these compounds

If you have oxidizers that you no longer need, contact the Chemical Hygiene officer

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### Questions

Contact Jason Williams or Environmental Health and Safety if you have any questions about this SOP or this compound.

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### APPENDIX

#### List of common oxidizers used at Amherst College

Ammonium nitrate  
Ammonium persulfate  
Cadmium nitrate  
Cobalt nitrate  
Copper nitrate  
Ferric nitrate  
Hydrogen peroxide  
Lead nitrate  
Magnesium nitrate  
Magnesium perchlorate  
Nitric acid  
Potassium bromate  
Potassium chlorate  
Potassium dichromate  
Potassium permanganate  
Potassium persulfate  
Silver nitrate  
Sodium nitrate  
Sodium chlorite

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