

Principal Investigator: _____

Date Approved: _____

This document covers basic chemical safety protocols (CSP) for potentially explosive chemicals (PEC) and supplements the laboratory Chemical Hygiene Plan as appropriate. Additional lab-specific safety operating procedures for PEC may also be required. The use of any potentially explosive chemicals is subject to pre-approval by the Principal Investigator (PI) and/or the designated Laboratory Responsible Safety Person. DO NOT USE ANY PEC UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL AND TRAINING.

Potentially Explosive Chemicals

Potentially explosive chemicals (PEC) are liquid or solid materials that can undergo a sudden release of pressure, gas, and heat when subjected to an initiating mechanism such as friction, impact, catalysts, light, or heat. Examples include: nitrocellulose, dibenzoyl peroxide, picrate salts, and most 'trinitro-'compounds. Chemicals covered by this SOP **do not** include peroxide-forming chemicals, picric acid, ammonium perchlorate or nitrate salts.



Personal Protective Equipment & Personnel Monitoring


Lab Coat

Flame resistant lab coat.


Gloves

Nitrile or neoprene gloves.


Eye Protection

Face Shield

ANSI Z87.1-compliant safety goggles, or face shield if a splash hazard is present. Consider using a blast shield for extra protection.

Labeling & Storage

Store in secondary containment at the manufacturer's recommended temperature in an explosion-proof refrigerator/freezer or an explosion-proof cabinet that does not contain flammables or chemically incompatible materials. Keep away from heat, light, and any potential initiating mechanisms. 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. Limit the amount kept in storage to the amount needed for planned and/or foreseeable experiments.

Engineering Controls, Equipment & Materials

Fume Hood

Work in a chemical fume hood whenever possible. Keep the sash at the lowest practical height while working and close the sash when the fume hood is not in use.

Blast Shield

When working with PEC the use of a portable blast shield inside the fume hood is highly recommended.

Cautions and Considerations

Limits on Scale

The PI and/or supervisor must communicate and enforce clear limits on the quantity of each PEC that can be used in any single experiment. Consult with your PI if you do not know the quantity limit(s) that has been set for your lab.

Initiating Mechanism

Before working with any potentially explosive chemicals, determine the initiating mechanism that could lead to an explosion; friction, impact, catalysts, light, or heat. Refer to the chemical safety data sheets (SDS) for this information. Also consider working with equipment that cannot generate static electricity or sparks.

Housekeeping

Spills

Notify others in the area of the spill, including your PI/Responsible Safety Person. If it is a small spill that you can easily handle, use the contents of your lab spill kit to clean it up. If it is a large spill, then evacuate the area where the spill occurred. Call Vanderbilt University Public Safety (VUPS) at 615-421-1911 or use the Vandysafe app on your smart phone. Report any exposure through Risk and Insurance Management’s Origami portal and mark that it occurred in research when prompted. Both VUPS and the Origami system will notify EHS of the incident. Remain on-site at a safe distance to provide detailed information on the **explosion risk** to first responders.

Decontamination

Decontamination methods will vary based on the materials handled and equipment being used. Please review the chemical SDS for guidance on cleaning materials.

Waste

Collect PECs in sealed containers protected from light and heat and dispose of as hazardous waste. Refer to the laboratory *Chemical Hygiene Plan* (Section 6.7) for information on proper chemical waste disposal procedures.

First Aid & Emergencies

Skin or Eye Contact

Without putting yourself at risk, move person into fresh air. Remove contaminated clothing and accessories; flush affected area with water for at least 15 minutes. Get medical attention immediately.

Inhalation

Without putting yourself at risk, move person into fresh air. If symptoms persist, get medical attention.

Ingestion

Rinse mouth with water. If symptoms persist, get medical attention.

Name	Signature	Date