Standard Operating Procedure

**1,1-Dichloroethylene (VinylideneChloride)**

*This is an SOP template and is not complete until: 1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and   
3) SOP has been signed and dated by the PI and relevant lab personnel.*

Print a copy and insert into your   
*Laboratory Safety Manual* and *Chemical Hygiene Plan*.   
Refer to instructions for assistance.

|  |  |
| --- | --- |
| **Department:** | Click here to enter text. |
| **Date SOP was written:** | Click here to enter a date. |
| **Date SOP was approved by PI/lab supervisor:** | Click here to enter a date. |
| **Principal Investigator:** | Click here to enter text. |
| **Internal Lab Safety Coordinator/Lab Manager:** | Click here to enter text. |
| **Lab Phone:** | Click here to enter text. |
| **Office Phone:** | Click here to enter text. |
| **Emergency Contact:** | Click here to enter text. |
| *(Name and Phone Number)* |
| **Location(s) covered by this SOP:** | Click here to enter text. |
| *(Building/Room Number)* |

**Type of SOP:**  Process Hazardous Chemical  Hazardous Class

**Purpose**

1,1-dichloroethylene or 1,1-DCE, is a Peroxide Forming Chemical (PFC). It is mainly used a co-monomer in the polymerization and can also be used in semiconductor device fabrication for growing high purity silicon dioxide films. 1,1-dichloroethylene can be polymerized to form polyvinylidene chloride, a very widely used cling wrap product.

**Physical & Chemical Properties/Definition of Chemical Group**

CAS#: 75-35-4

Class: Flammable, Toxin, Peroxide Former

Molecular Formula: C2H2Cl2

Form (physical state): liquid

Color: colorless

Boiling point: 30 - 32 °C

**Potential Hazards/Toxicity**

Harmful by skin contact, eye contact, ingestion, and/or inhalation. Material causes skin irritation and is harmful if absorbed through skin. Causes eye irritation if splashed in eye. It is very toxic if swallowed. It is harmful if inhaled, causing respiratory tract irritation.

**Personal Protective Equipment (PPE)**

**Respirator Protection**

Use a full-face particle respirator with multi-purpose combination (US) respirator cartridges as a backup to engineering controls (i.e. no fume hood available). If the respirator is the sole means of protection, use a full-face supplied air respirator.

Respirators should be used only under any of the following circumstances:

* As a last line of defense (i.e., after engineering and administrative controls have been exhausted).
* When Permissible Exposure Limit (PEL) has exceeded or when there is a possibility that PEL will be exceeded.
* Regulations require the use of a respirator.
* An employer requires the use of a respirator.
* There is potential for harmful exposure due to an atmospheric contaminant (in the absence of PEL)
* As PPE in the event of a chemical spill clean-up process

Lab personnel intending to use/wear a respirator mask must be trained and fit-tested by ORS and should contact occhealt@uga.edu. This is a UGA requirement described in more detail in the [UGA Respiratory Protection Plan](https://esd.uga.edu/sites/default/files/respiratoryprotection.pdf) and supported by the [Office of Research Occupational Health and Safety Program](https://research.uga.edu/ohsp/).

**Hand Protection**

When handling the chemical, nitrile, neoprene, or butyl rubber gloves are recommended.Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with **1,1-**Dichloroethylene (Vinylidene Chloride).

NOTE: Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with 1,1-Dichloroethylene

Refer to glove selection chart from the links below:

<http://www.ansellpro.com/download/Ansell_8thEditionChemicalResistanceGuide.pdf>

OR

<http://www.allsafetyproducts.biz/page/74172>

OR

<http://www.showabestglove.com/site/default.aspx>

OR

<http://www.mapaglove.com/>

**Eye Protection**

Safety glasses/goggles and face shield (it is highly important that tightly fitting safety goggles and/or full face shield (8-inch minimum) are worn during activities which pose a splash hazard).

**Skin and Body Protection**

Flame resistant lab coat, long pants, and closed-toe shoes.

**Hygiene Measures**

Avoid contact with skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Engineering Controls**

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. A fume hood should be used at all times when handling 1,1-Dichloroethylene (Vinylidene Chloride).

**First Aid Procedures**

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Get medical attention immediately.

**In case of skin contact**

Take off contaminated clothing and shoes immediately and flush skin with plenty of soap and water for at least 15 minutes. Wash clothing and thoroughly clean shoes before reuse. Get medical attention immediately.

**In case of eye contact**

Check for and remove any contact lenses. Immediately flush eyes thoroughly with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**If swallowed**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Rinse mouth with water. Get medical attention immediately.

**Special Handling and Storage Requirements**

**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use explosion-proof equipment. A fume hood should be used when handling 1,1-Dichloroethylene (Vinylidene Chloride). Keep away from sources of ignition and definitely no smoking. Take measures to prevent the buildup of electrostatic charge.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Segregate the chemical and store in secondary containment. Label the bottle, secondary containment, and storage cabinet as “Potentially Explosive Chemical.” On the bottle, put the date the chemical was received and the date the chemical was opened.

**Spill and Accident Procedure**

**Chemical Spill Dial 911**

**24-7 On-Call Response to Research, Environment, Health or Safety Concerns Dial 2-5561 from a campus phone or 706-542-5561 from a non-campus line.**

**Spill** – Follow the procedures set out in the [UGA Chemical and Laboratory Safety Manual.](http://research.uga.edu/docs/units/safety/manuals/Chemical-Laboratory-Safety-Manual.pdf)

[If there are any chemical-specific protocols for responding to a spill, insert them here or mark “none”:]

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# **Medical Emergency Dial 911**

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial **911** or the emergency phone numbers listed at the beginning of the UGA Chemical and Laboratory Safety Manual

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Non-Life Threatening Emergency** – Follow the instructions in the UGA Chemical and Laboratory Safety Manual.

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Decontamination/Waste Disposal Procedure**

**For general hazardous waste disposal procedures, see Appendix H of the UGA Chemical and Laboratory Safety Manual.**

**Chemical Specific Procedures: [to be inserted or marked as “none”]**

Instruments and benches contaminated with 1,1-Dichloroethylene (Vinylidene Chloride) should be decontaminated with soap and water. All 1,1-Dichloroethylene (Vinylidene Chloride) waste and contaminated disposables should be disposed of as hazardous waste.

**Safety Data Sheet (SDS) Location**

UGA personnel can access Online SDS through a link in the upper left corner of the ESD home page (<https://esd.uga.edu>) and logging in by using their UGA email user name and password.

**Protocol/Procedure (Add lab specific Protocol/Procedure here)**

Click here to enter text.

**NOTE**

Any deviation from this SOP requires approval from PI.

**Documentation of Training** (signature of all users is required)

* Prior to conducting any work with 1,1-Dichloroethylene, designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP and access to the SDS provided by the manufacturer.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training within the last 12 months.

**Principal Investigator SOP Approval**

Print name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Approval Date:

I have read and understand the content of this SOP:

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