

Principal Investigator: _____

Date Approved: _____

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

Methylchlorosilane

Methylchlorosilane (CH_3ClSi) is a colorless, highly flammable, corrosive gas that reacts violently with water to produce hydrogen chloride. The heat of this reaction can ignite the remaining gas, which when burned also produces phosgene – a poisonous gas. When inhaled or in contact with skin or mucous membranes, methylchlorosilane gas will form hydrochloric acid, destroying the tissues it touches. The gas is heavier than air and has a distinctive odor.

Methylchlorosilane is used in academic chemical and material sciences research. It is also used in the industrial production of water repellent materials.



Personal Protective Equipment & Personnel Monitoring

**Lab Coat**

Flame resistant lab coat.

**Gloves**Neoprene gloves are recommended. **Do NOT wear latex.****Eye Protection**

ANSI Z87.1-compliant safety glasses or safety goggles.

Labeling & Storage

Methylchlorosilane must be stored in a toxic gas cabinet or exhausted enclosure away from combustible materials, oxidizing substances, water, or ignition sources.

NFPA 55 requires that flammable cylinders in storage be separated from oxidizing gas cylinders by a minimum distance of 20 feet or by a noncombustible barrier at least five feet high and with a fire resistance rating of least one-half hour. In addition, the barrier to be at least 18 inches above the tallest cylinder.

Methylchlorosilane compressed gas cylinders should be double chained to the inner wall of the toxic gas cabinet or a stable structure within an exhausted enclosure. The first chain should be 1/3 from the bottom of the cylinder and the second chain should be 1/3 from the top of the cylinder. Alternatively, use a cylindrical casing to secure the cylinder within the exhausted enclosure next to your experimental setup. Refer to American Society of Mechanical Engineers code for Process Piping, ASME B31.3, to select compliant piping.

Always use the correct pressure regulator. After attaching the regulator, and before the cylinder is opened, check the adjusting screw of the regulator to see that it is released.

What not to do: Do not use table/bench clamps for securing cylinders. Never store cylinders on transportation carts. Remove regulators from cylinders when not in use and replace with the safety cap. Never use a cylinder without a regulator. Never permit the gas to enter the regulator suddenly. Never try to stop a leak between a cylinder and regulator by tightening the union nut unless the cylinder valve has been closed first. Never strike an electric arc on the cylinder.

Engineering Controls, Equipment & Materials

Fume Hood

If your protocol does not permit the handling of these materials in a fume hood, contact the Office of Environment, Health, Safety, and Sustainability (EHSS) to determine whether alternative engineering controls are warranted.

Releases

Immediately notify others in the area of the release and evacuate the location where the release occurred. Notify your PI/Responsible Safety Person and call Vanderbilt University Public Safety (VUPS) at 615-421-1911 or use the Vandsafe 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 to first responders.

Waste

If the vendor does not have a method to return/refill a cylinder, refer to the laboratory *Chemical Hygiene Plan* (Section 6.7) for information on proper chemical waste disposal procedures.

First Aid & Emergencies

Skin Contact

Immediately remove contaminated clothing and shoes; flush skin with water in a safety shower for at least 15 minutes. Get medical attention immediately.

Eye Contact

Check for and remove contact lenses. Immediately flush eyes with water for at least 15 minutes. Get medical attention immediately.

Inhalation

Move person into fresh air. Get medical attention immediately.

Name	Signature	Date