Fact Sheet: "Chlorosilanes"

HSC ® HEMLOCK SEMICONDUCTOR

What are "Chlorosilanes"?

Chlorosilanes are chemical compounds made up of silicon, hydrogen, chlorine and sometimes other elements. At Hemlock Semiconductor Operations, they are used in the manufacture of polycrystalline silicon metal for the semiconductor and solar cell industries. They are also sold directly to semiconductor and fiber optic cable customers for use in their processes. Specific chlorosilanes in use at Hemlock Semiconductor Corporation include Trichlorosilane, Dichlorosilane and Silicon Tetrachloride.

Chlorosilanes are colorless (or slightly colored) liquids, but if accidentally released to the atmosphere, they may form a visible, fog-like cloud. Chlorosilanes react with water, including moisture in the air, to form Hydrogen Chloride or hydrochloric acid and a white residue of SiO_2, or silica (a component of common sand). This residue may become deposited on vegetation, houses, vehicles and other objects downwind of the release point.

Some chlorosilanes are flammable. Consequently, the vapors may ignite if they reach a spark or an open flame.

Chlorosilanes and their reaction by-product, Hydrogen Chloride, have a sharp disagreeable odor, even at low concentrations.

Effects of exposure & first aid

The effects listed below are possible effects of exposure to Chlorosilanes. The actual effects will depend on the duration of exposure, the severity of exposure (concentration) and the particular individual (e.g., age, physical condition, etc.).

	Possible effects	What to do
Eyes	Irritation; slight to severe pain and watering; slight to severe burns	Hold eyes open and immediately flush with cool or lukewarm water for 15 minutes. Seek immediate medical attention.
Skin	Slight irritation to severe burns	Immediately flush skin with cool or lukewarm water for 15 minutes, seek immediate medical attention.
Inhalation	Slight irritation to severe burns to the respiratory tract	Seek fresh air and immediate medical attention.
Oral	Slight irritation to severe burns to the mouth and/or throat	Seek immediate medical attention. Do not induce vomiting.

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Shelter-in-place procedures

In case of an airborne release of Chlorosilanes, individuals should follow "shelter-in-place" procedures outlined below. Properly followed, these procedures safely protect people and animals until the hazard has passed.

1. Take shelter inside the nearest building.

2. Close and securely latch all doors and windows.

3. Turn off all fans, air conditioners, furnaces and pilot lights.

4. Put out fires in fireplaces or wood stoves. Close all dampers.

5. Go to an interior room located on the ground or upper level. **Do not go to basement areas** (vapors are heavier than air). Use duct tape, plastic sheeting, or towels to seal doors and windows.

6. If you are in a vehicle, safely stop the vehicle and shut off the engine. Close all doors, windows and vents and turn off the fan.

7. Stay inside and wait for the "all clear". Listen to local television or radio for further instructions.

After the "All Clear"

People who experience any irritation or other medical problems as a result of exposure should seek immediate medical attention.

People, including children, and pets can go outside. As a precaution, normal bathing with soap and water is recommended.

Building windows, dampers and vents should be opened to air out the building Heating or air conditioning systems can be safely used.

Fruits and vegetables from gardens should be washed thoroughly before eating.

Trees shrubs and lawns near the release may eventually discolor or show other effects of exposure Thorough rinsing of exposed surfaces with water may minimize these effects.

Rivers, streams, ponds and swimming pools should be unaffected.

More information?

Contact Hemlock Semiconductor Operations with any questions or concerns. Ask for VP Manufacturing, VP External Affairs, or EHSS Manager.

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