



## VESICANTS (Blister Agents and Lewisites)

### I. Protocol Overview

Vesicants or blister agents are highly reactive chemicals that cause cellular level changes. Vesicants include distilled mustard (HD), mustard gas (H), mustard/lewisite (HL), mustard/T, sesqui mustard, sulfur mustard (H), nitrogen mustards (HN-1, HN-2, HN-3), lewisites (L, L-1, L-2, L-3), lewisites/chloroarsine agents, and phosgene oxime (CX).

Signs and symptoms are often delayed by several hours after exposure and include redness and blistering of the skin, ocular irritation, pain, swelling, tearing and blindness, nose and sinus pain, cough, sore throat, shortness of breath, abdominal pain, diarrhea, nausea, and vomiting. Central nervous system effects such as tremors, incoordination, and seizures are possible following a large exposure.

For all suspected chemical exposures, consult the Poison Control Center (800-222-1222) located at Children's Hospital of Philadelphia. Information and treatment advice is available to the public and healthcare professionals at no charge.

Mass spectrometry methods are used to detect the urinary, food, and environmental nitrogen and sulfur mustards. Samples are extracted and mustard metabolites are quantified via liquid chromatography (LC) or gas chromatography (GC) separation followed by isotopic dilution mass spectrometry analysis (LC/MS/MS or GC/MS/MS). Urinary lewisite agents are detected through the use of ion chromatograph inductively coupled plasma dynamic reaction cell mass spectrometry (IC-ICP-DRC/MS). Samples are acidified and quantified via ion chromatography (IC) separation followed by elemental ICP/MS analysis.

The Delaware Public Health Laboratory does not perform this testing. Contact the CDC or the Poison Control Center.

### II. Contact Information

24/7 CDC Emergency Contact Number: 1-888-295-5156

Poison Control Center: 215-386-2100

### III. CDC Website

<http://emergency.cdc.gov/agent/vesicants/casedef.asp>