

HAZARDOUS MATERIALS STORAGE PROGRAM VIOLATION CODES TOXIC GASES

Authority Cited: Santa Clara County Ordinance Code, Div. B11 (SCCO)

This document has been prepared to briefly summarize common violations observed by Santa Clara County Hazardous Materials Compliance Division (HMCD) at facilities that store or handle toxic gases. Each requirement of law/regulation is identified by a Violation Code (VC) to help you understand violations noted in an Official Notice of Inspection. The complete and official text of these requirements can be found on-line at www.EHinfo.org/hazmat. If you would like to discuss any interpretations of these requirements, please call HMCD at (408) 918-3400 and ask for the Hazardous Materials Program Manager.

A. General

V	N/A	Violation Code	Regulatory Citation	
<input type="checkbox"/>	<input type="checkbox"/>	2100	SCCO §§ B11-21 B11-390(a)	Operating Permit - No person may store, dispense, use or handle any toxic gas as defined in Chapter XIV of Division B11 of the SCCO in excess of an exempt amount unless a compliance plan has been submitted to HMCD and a toxic gas operating permit has been issued.
<input type="checkbox"/>	<input type="checkbox"/>	2101	SCCO § B11-391	Closure Plan - No person may abandon, remove, or close a facility handling a regulated toxic gas until a closure plan meeting the requirements of SCCO §B11-391(b) has been submitted to and approved by HMCD.
<input type="checkbox"/>	<input type="checkbox"/>	2102	SCCO § B11-380(a)	Seismic Protection - Stationary tanks and piping for regulated gases must be seismically braced in accordance with the currently adopted edition of the Uniform Building Code.
<input type="checkbox"/>	<input type="checkbox"/>	2103	SCCO § B11-380(b)	Security - Facilities where regulated gases are stored, handled, dispensed, or used must be secured against unauthorized entry.
<input type="checkbox"/>	<input type="checkbox"/>	2104	SCCO § B11-380(c)	Breathing Apparatus - Facilities where Class I or corrosive gases are present must have at least two self-contained breathing apparatuses (SCBAs) for immediate on-scene response. SCBA locations must provide safety for those expected to don the SCBAs and be conspicuously marked.
<input type="checkbox"/>	<input type="checkbox"/>	2105	SCCO § B11-380(d)	Incompatible Materials - Regulated gases must be separated from incompatible hazardous materials by means of one-hour fire-resistive construction or by the use of separate gas cabinets in accordance with California Fire Code (CFC), Table 5108-A. <i>[Formerly Table 51-110A.]</i>
<input type="checkbox"/>	<input type="checkbox"/>	2106	SCCO § B11-380(e)	Leak Testing - Containers of regulated gases must be leak tested in a manner approved by HMCD immediately upon delivery and again immediately prior to departure from the facility. Appropriate remedial actions must immediately be taken when leaks are detected.
<input type="checkbox"/>	<input type="checkbox"/>	2107	SCCO § B11-380(f)	Protective Plugs/Caps - Protective plugs and caps of regulated gases must be in place at all times unless and until the gases are properly placed in use.
<input type="checkbox"/>	<input type="checkbox"/>	2108	SCCO § B11-380(g)	Emergency Response Plan - A facility emergency response plan must be prepared and submitted to HMCD and the local fire agency.

V	N/A	Violation Code	Regulatory Citation	
<input type="checkbox"/>	<input type="checkbox"/>	2109	SCCO § B11-380(h)	Emergency Response Team - The facility must have a designated on-site emergency response team composed of an adequate number of trained, responsible persons who are familiar with the emergency response plan and the chemical nature of toxic gases handled.
<input type="checkbox"/>	<input type="checkbox"/>	2110	SCCO § B11-380(i)	Emergency Drills - The emergency response team must conduct drills at least once every three months. Records of such drills must be retained for at least three years and be made available for inspection by HMCD or the local fire agency upon request.
<input type="checkbox"/>	<input type="checkbox"/>	2111	SCCO § B11-380(j)	Annual Maintenance - All safety control systems at the facility must be tested at least annually and maintained in good working condition. Maintenance and testing must be performed by qualified persons. Maintenance records and certifications must be made available for inspection by HMCD upon request.
<input type="checkbox"/>	<input type="checkbox"/>	2112	SCCO § B11-380(k)	Flow Limiting Devices - Containers holding Class I materials, regardless of capacity, must be equipped with a flow restricting orifice (RFO) when available from the gas supplier. If RFOs are not available, a flow limiting device must be provided. <i>[Note: Per SCCO §B11-366(c), this requirement applies to Class I materials in <u>any</u> amount, including amounts which would otherwise be classified as exempt under SCCO.]</i>
<input type="checkbox"/>	<input type="checkbox"/>	2113	SCCO § B11-380(l)	Fire Extinguishing Systems - Except in cases where the chemical properties of toxic gases are such that they are incompatible with sprinkler systems, all interior and exterior use areas and interior storage areas and storage buildings must be protected by automatic fire extinguishing systems meeting the requirements of the current edition of NFPA for Ordinary Hazard Group II or nationally recognized standards, whichever is stricter. <i>[Note: Per SCCO §B11-366(c), this requirement applies to Class I materials in <u>any</u> amount, including amounts which would otherwise be classified as exempt under SCCO.]</i>

[Note: Regulated materials exceeding their Maximum Threshold Quantity shall be classified one level higher than otherwise determined by their MHI (i.e., Class III to Class II, or Class II to Class I).]

B. Class I Controls

N/A

[Class I materials are those with a median lethal concentration (LC₅₀) in air of 200 ppm or less by volume of gas or vapor, or two milligrams per liter or less of mist, fume, or dust when administered by continuous inhalation for an hour, or less if death occurs within one hour, to albino rats weighing between 200 and 300 grams each. Class I materials must also meet all requirements of Sections C, D, and E, below.]

V	N/A	Violation Code	Regulatory Citation	
<input type="checkbox"/>	<input type="checkbox"/>	2120	SCCO § B11-381	Class I Controls - Facilities where Class I materials are present must meet the following requirements: <ul style="list-style-type: none"> <input type="checkbox"/> Piping must be provided with secondary containment capable of directing a sudden release into an approved discharge treatment system; <input type="checkbox"/> Piping secondary containment must be continuously monitored by an approved gas monitoring system; <input type="checkbox"/> Automatic shut-off valves of “fail-safe to close” design must be installed. Such valves must activate in the event of the following: gas detection; manual activation from a remote location; failure of primary containment or emergency power; activation of a manual fire alarm; or seismic activity; <input type="checkbox"/> Signals from emergency equipment must be transmitted to an emergency control station which is continuously staffed by trained personnel. (Continued on Next Page)

(Class I Controls - Continued)

- Signals that must be transmitted to the emergency control station include:
 - Gas detection;*
 - Toxic gas manual pull stations;
 - Primary containment failure (i.e., gas detection);*
 - Manual fire alarm pull stations;
 - Toxic gas transport alarms;*
 - Storage area or room manual alarm/shut-off (i.e., gas source and local manual shut off).

* Required for Class I and Class II gases.

C. Class II Controls

N/A

[Class II materials are those with a LC₅₀ in air more than 200 ppm but not more than 3,000 ppm by volume of gas or vapor, or more than two milligrams per liter but not more than 30 milligrams per liter of mist, fume, or dust when administered by continuous inhalation for an hour, or less if death occurs within one hour, to albino rats weighing between 200 and 300 grams each. Class II materials must also meet all requirements of Sections D and E, below.]

V	N/A	Violation Code	Regulatory Citation	
<input type="checkbox"/>	<input type="checkbox"/>	2125	SCCO § B11-382	<p>Class II Controls - Facilities where Class II materials are present must meet the following requirements:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Piping and tubing must be installed per appropriate nationally-recognized standards, if any, and approved by HMCD; <input type="checkbox"/> Piping and tubing must have welded connections compatible with the regulated material throughout unless an exhausted enclosure is provided; <input type="checkbox"/> Manually activated shut-off valves of “fail-safe to close” design must be installed at locations near points of use, near sources, and at other locations if required by HMCD; <input type="checkbox"/> Emergency power must be provided for: <ul style="list-style-type: none"> <input type="checkbox"/> Exhaust ventilation; <input type="checkbox"/> Treatment systems; <input type="checkbox"/> Gas detection systems; <input type="checkbox"/> Emergency alarm systems; <input type="checkbox"/> Temperature control systems (as required by CFC). <input type="checkbox"/> Portable tanks and cylinders must be provided with excess-flow control; <input type="checkbox"/> Valves must be permanently marked to indicate maximum design flow rate; <input type="checkbox"/> Approved continuous gas detection system(s) connected to visual and distinct audible alarms must be provided to detect the presence of the gas(es) at or below PEL. Alarms must provide warning both inside and outside of storage, use, or handling areas. Alarms must initiate both locally and at a continuously-staffed remote location; <input type="checkbox"/> Approved automatic seismic shut-off valves must be provided; <input type="checkbox"/> When regulated materials are transported through exit corridors or exit enclosures, an emergency telephone, local manual alarm station, or approved signaling device must be located at not more than 150 foot intervals and at each exit doorway throughout the transport route. Emergency signals must initiate a local alarm and be relayed to an approved remote station service, or a constantly attended on-site location. <input type="checkbox"/> Inert construction materials must be used for the primary containment of corrosive regulated materials except where approved secondary containment has been provided.

D. Class III Controls

N/A

[Class III materials are those with a LC₅₀ in air more than 3,000 ppm but not more than 5,000 ppm by volume of gas or vapor, or more than 30 milligrams per liter but not more than 50 milligrams per liter of mist, fume, or dust when administered by continuous inhalation for an hour, or less if death occurs within one hour, to albino rats weighing between 200 and 300 grams each. Class III materials must also meet all requirements of Section E, below.]

V	N/A	Violation Code	Regulatory Citation
<input type="checkbox"/>	<input type="checkbox"/>	2130	SCCO § B11-383

Class III Controls - Facilities where Class III materials are present must meet the following requirements:

- Piping must be designed and fabricated from materials compatible with the material to be contained, and of sufficient strength and durability to withstand the pressures, structural and seismic stresses, and exposures to which it may be subjected;
- Adequately sized expansion chambers must be provided between valves whenever a regulated gas may be subjected to thermal expansion;
- Stationary aboveground tanks must be placarded with hazard identification signs as specified in California Fire Code (CFC) Standard No. 79-3;
- Signs prohibiting smoking must be posted in indoor storage, use, and handling areas and within 25 feet of outdoor storage, use, and handling areas;
- Signs must be durable; of size, color, and lettering approved by HMCD, and printed in English and such other languages as may be appropriate. Signs must not be obscured;
- Regulated gas systems must be provided with dedicated inert gas purge systems.

E. Minimum Threshold Quantity Controls

[Minimum Threshold Quantity (Min. TQ) means the aggregate quantity of regulated materials in a control area does not exceed 2 pounds.]

V	N/A	Violation Code	Regulatory Citation
<input type="checkbox"/>	<input type="checkbox"/>	2135	SCCO § B11-384

Min. TQ Controls - Facilities where materials are present at or below Min. TQ thresholds must meet the following requirements:

- Storage of cylinders must be within exhausted gas cabinets, exhausted enclosures, or within a ventilated separate gas storage room as defined in the CFC;
- Portable and stationary tanks must be stored within a separate ventilated room without other occupancy or use;
- If gas cabinets are provided, the room or area in which they are located must have independent exhaust ventilation;
- Exhaust systems for gas cabinets, exhausted enclosures, and separate gas storage rooms must be capable of diluting, adsorbing, absorbing, neutralizing, burning, or otherwise processing the entire contents of the single tank or cylinder present;
- Gas cabinets must be:
 - Operated at negative pressure;
 - Connected to a treatment system;
 - Provided with self-closing doors;
 - Provided with self-closing limited access ports or fire-rated windows to give access to equipment controls;
 - Labeled with:
 - Chemical name;
 - Hazard class of each gas contained within (CFC hazard class);
 - In the case of mixtures, the percentage or ppm concentration of each hazardous constituent.
- Adequately sized treatment systems, designed to reduce gas concentration to one-half IDLH at the point of discharge, must be used to process all exhaust ventilation from gas cabinets, exhausted enclosures, and separate gas storage rooms;

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(Min. TQ Controls - Continued)

- Stationary tanks must be labeled with the maximum rate of release, expressed in cubic feet per minute, for the gas contained based on any valves or fittings inserted directly into the tank;
- Reduced flow and excess flow valves on portable tanks or cylinders must be permanently marked to indicate the maximum design flow rate;
- Each regulated DOT Poison A material stored or used within the facility must be monitored by a portable or fixed gas detection system capable of monitoring at PEL.

F. Exterior Storage

N/A

V	N/A	Violation Code	Regulatory Citation	
<input type="checkbox"/>	<input type="checkbox"/>	2140	SCCO § B11-385(b)	Storage Distance - Storage of regulated materials must not be within 75 feet of a building structure, property line, street, alley, public way, or exit to a public way unless the storage has approved shielding.
<input type="checkbox"/>	<input type="checkbox"/>	2141	SCCO § B11-385(e)	Canopies - Portable tanks and cylinders must be stored under a canopy of non-combustible materials equipped with an automatic fire sprinkler system or other approved fire control system.
<input type="checkbox"/>	<input type="checkbox"/>	2142	SCCO § B11-385(f)	Stationary Tank Controls - Pressure-relief devices must be vented to an approved treatment system. Where filling or dispensing connections are provided, they must be provided with a means of local exhaust, designed to capture fumes and vapors, which is directed to an approved treatment system. Other than pressure-relief devices, all tank inlet and outlet connections which are not designed to preclude backflow must be provided with a means of excess flow control.
<input type="checkbox"/>	<input type="checkbox"/>	2143	SCCO § B11-385(g)	Gas Cabinets for Leaking Cylinders - Within or adjacent to each exterior storage area, at least one gas cabinet or exhausted enclosure connected to an approved treatment system must be provided for the handling of leaking cylinders. <i>[Exception: This is not required if all cylinders are stored within gas cabinets or exhausted enclosures.]</i>
<input type="checkbox"/>	<input type="checkbox"/>	2144	SCCO § B11-385(h)	Local Exhaust for Leaking Portable Tanks - Within or immediately adjacent to every exterior storage area, and within each separate gas storage room, an approved means of local exhaust must be provided to capture regulated material leaking from portable tanks.

[Note: To qualify for exemption from Chapter XIV, Division B11 of SCCO, the aggregate amount of otherwise regulated materials in a control area can not exceed Min. TQ, and amounts contained in an individual container can not exceed 1 pound. Class B occupancies are limited to a maximum of 4 control areas.]