

Federal Risk Management Plan (RMP)

Considerations

The Federal RMP Offsite Consequence Analysis Guidance document states that only passive mitigation devices can be considered, to reduce the offsite area affected by a release in the worse case scenario.

ChlorTainer is the only technology that has been considered as a passive mitigation device. The mitigation factor of ChlorTainer has a numerical value of zero in that none of the toxic gas released within the vessel enclosure is released from the enclosure into the surrounding atmosphere.

Because a scrubber relies on mechanical devices, it cannot be considered as passive and provides no benefit in reducing or mitigating the worse case offsite consequence.

A functioning scrubber will release to the atmosphere from the stack of the scrubber: (3,000 ft³/min) (5 ppm) (60 min/hr) = 0.9 lb/hr for the duration of the release. For a one-ton container of chlorine this duration has been tested and found to extend to seven (7) hours with a chlorine release to the atmosphere from the scrubber stack of (0.9 lb/hr) - 6.3 lb.

Every study will show ChlorTainer- Total Containment System to be safer than a room with a scrubber.

See Chart 1.

**CHLORINE BUILDUP IN ROOM WITH GAS CHLORINE RELEASE FROM BROKEN GAS FEED LINE
COMPARING ONE-TON TGO VESSEL TO ROOM WITH 3.000 CU FT/MINUTE SCRUBBER OPERATING**

TIME	Room Volume 5,000 CU FT		Room Volume 10,000 CU FT		Room Volume 20,000 CU FT	
	Vented Room with TGO Vessel (ppm)	Vented Room with Scrubber Operating (ppm)	Vented Room with TGO Vessel (ppm)	Vented Room with Scrubber Operating (ppm)	Vented Room with TGO Vessel (ppm)	Vented Room with Scrubber Operating (ppm)
0	0	0	0	0	0	0
1	10	5,890	5	3,380	2	1,820
2	8	9,130	4	5,690	2	3,380
3	7	10,900	4	7,750	2	4,730
4	6	11,900	3	9,130	2	5,880
5	5	12,400	3	10,100	1	6,880
10	2	10,700	1	10,800	0.6	9,140
15	1	10,300	0.5	10,400	0.2	9,750
30	0.1	6,450	0	6,560	0	7,040
40	0	6,440		6,450		6,570
50		4,790		4,870		5,180
60		4,780		4,790		4,870
70		3,320		3,390		3,660
80		3,310		3,320		3,390
90		2,030		2,090		2,330
100		2,020		2,030		2,090
110		923		975		1,180
120		920		923		978
130		2		46		218
140		0.1		2		49
150		0		0.1		11
160				0		2
170						0.5
180						0.1
190						0

