

Engineering Considerations

Automatic/Manual Damper

If two rooms containing either chlorine or sulfur dioxide need to be evacuated, automatic louvers can be installed to direct the gas flow from the opposite room where the leak occurred. Since the standard airflow of the Sentry 2000 is 3000 ACFM, it is possible to use manual dampers to each room and balance the flow rate of gas. The engineer can choose any flow rate desired from each room such as 2000-CFM to the storage room and 1000-CFM to the evaporator room. The elimination of automatic dampers will reduce to initial cost of the ductwork system and remove a potential source of failure during the chlorine or sulfur dioxide leak.

System Flow Rates

The basic system is rated for 3000 ACFM. If an application should require additional gas flow to the scrubber for any reason, the Sentry 2000 gas flow rate can be increased with calculated results. The packed bed portion of the system will increase in height based on the required flow rate, but the total length and width of the unit will not change. Scrubber flow rates can easily be increased to 4500 - 5000 CFM. Cost of the system will increase approximately 15% depending on the type of system specified. This additional cost may be saved by the elimination of automatic louvers and the required electrical components.

Double Containment

The standard scrubber system will need a containment dike for the caustic in case of a leak. We offer a true double containment tank system that will eliminate the need for the containment dike. Only a concrete pad will be required. This system will be extremely useful in modification of existing buildings for the addition of the chlorine scrubber.

In addition, the double containment system with the top mounted pumps will eliminate the need for pump seals, water flushing of the seals and freeze protection of the water flush if a seal pot is not used. Refer to a typical specification for details.

Safety Relief Vents from Evaporators

Sparger System

In the past, the safety relief vents from evaporators have been piped to the atmosphere outside the storage room. Currently many applications will require that the safety valves be piped to the scrubber. One of the options on our system installs a sparger tube into the caustic storage tank on the side near the bottom of the storage vessel.

If the safety valve system is piped to the scrubber, it should be piped through a barometric loop with an air purge as recommended by the Chlorine Institute Inc. Pamphlet #9. Many engineers will eliminate the barometric loop due to height constraints of the building.

Vent to Storage Room Scrubber Inlet

In lieu of venting the relief valves to the scrubber sparger, the vents maybe connected to the inlet duct of the scrubber. If the safety valve should relieve into the containment room scrubber inlet ductwork, the gas detector will turn on the scrubber and scrub the gas. The main concern with this approach is employee safety during the time of release and scrubber operation if the employee is in the area.

Vacuum Relief Vents

In the past, the vacuum relief vents have been piped to the atmosphere. These vents maybe piped to the area near the scrubber inlet ductwork in the containment room.