

SAFETY - AUTOMATIC CHLORINE LEAK ABSORPTION SYSTEM



Introduction:

Chlorine has manifold diverse uses. As its usage and handling rise, the danger associated with it also rises. As such, a potential risk is involved, a severe emergency may suddenly and unexpectedly occur, such eventualities should be anticipated and proper methods should be devised in advance to meet them

Chlorine Leaks:

The leaks in Chlorine Tonner or Cylinder are the leaks around Valves and take-off Flexible Copper Tube Connectors, passing, shearing / breakdown of Valves, puncture on the wall of the Tonner. The common leaks at Valves or Copper Tubing can be met with standard Emergency Kits, but the others will be grave in nature and may suddenly and expectedly happen. It can be extensive and heavy.

RSVP CHLORO TECH has developed this package system to automatically control and absorb the heavy leaks from the chlorine Tonner based on the recommendations of Chlorine Institute Inc., U.S.A., Bureau of Indian Standards, National Safety Council., Alkali manufacturer's Association of India.

Materials Description:

The package system consists of

1. FRP Gas Hood [s]
2. Chlorine gas suction Blower [s] /Fan [s]
3. Absorption Tower
4. Absorption Tank
5. Absorption Circulation Pump [s]
6. Interconnection Pipes, Fittings, Instruments & Valves etc.,
7. Chlorine Gas Leak Detector with Sensor [s]
8. Control Panel

Proper care has been taken in selection of material of construction of equipment, so that they are totally corrosion resistant, reliable and Safe.

Operation:

If the leak is uncontrollable, the FRP Gas Hood is placed over the Tonner manually to cover the leaky Tonner totally. The outlet nozzle of the Hood is connected to Blower suction by a flexible PVC hose and/or PVC/FRP piping or ducting. The Hood prevents the leaky chlorine gas to spread into the atmosphere.

Alternatively, as a precautionary method the Hood / Hoods can always be placed over the Tonner [s] which is /are in operation.

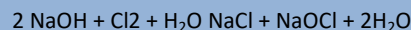
The Absorbent Pumps and suction Blower / Fans are started [Manually or in Automatic mode]. The Blower sucks the leaked chlorine gas, directs it to the Absorption Tower, where chlorine meets

counter currently the absorbent solution. The chlorine gas is absorbed by Absorbent and the air is vented at the top of the tower. As this is absorption accompanied by a chemical reaction, there will be only nil or negligible traces of chlorine in the air vent. The process of starting of Absorbent Circulation Pump and Blower can be done automatically based on the signals from Chlorine Gas Leak Detector sensor[s] located close to the Tonners and in Chlorination Plant.

Sufficient quantity of absorbent is continuously circulated in the Absorption Tower from the Absorbent Tank till the Tonner gets emptied. The spent Absorbent, after completion of neutralisation of all chlorine, will contain only sodium chloride, sodium hypochlorite or sodium sulphate salts which are innocuous. This can be disposed off without any pollution problem

Absorbent:

RSVP CHLORO TECH's Absorption System employs water solutions of sodium hydroxide as Absorbent for chlorine scrubbing and neutralization. This absorbent will end up with sodium chloride and Sodium hypochlorite as follows,



Using a single chemical as absorbent is easier, shelf life of PCS recommended concentration of Absorbent solution is very high, therefore very reliable, very simple, easy to operate and maintain and also very effective. This is very widely used all over the Country and the World.

Alternatively, RSVP CHLORO TECH's Absorption System employs water solutions of sodium hydroxide and sodium thiosulphate as Absorbent for chlorine scrubbing and neutralization. This absorbent will end up with only sodium sulphate and sodium chloride as follows,



The problem of disposing of the liquid effluent and chance of chlorine escaping from spent absorbent do not come into picture at all in the system.

This Automatic Chlorine Tonner Leak Detection and Neutralisation System is mainly designed to be suitable to standard Tonners. It can also be used for similar emergencies in case of cylinders. Any type of automation as may be required by the Client, can be provided. This system can be also be sized to evacuate and absorb leaks from the entire chlorine tonners storage room, chlorination plant area as whole.

It is a very Comprehensive Safety System and should be necessarily provided where Chlorine Tonners are used

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Process drawing (reference):

