

HOW TO USE A CORROSION CABINET

Installation of the cabinet

The most important decision is where to situate a Corrosion Cabinet so that installation makes the cabinet work efficiently.

The best position for a cabinet is against an external wall in the laboratory, so that the vent pipe from the cabinet can be taken directly to the outside.

The common thought with a Corrosion Cabinet is that it must be connected to a drain so that the liquid waste salt solution can drain away. This is very important but the most important factor is that the salt spray is produced by compressed air and this salt laden air has to escape from the cabinet. The air has to leave the cabinet at a faster rate than it is introduced into the cabinet so that the air pressure does not build up inside the cabinet. If the air cannot escape quickly then it will increase the pressure inside the chamber and then blow out from around the roof seal.

By placing the cabinet against an external wall the vent pipe from the cabinet can be taken straight through the wall which will allow the compressed air, which is full of salt, to escape quickly to atmosphere and this will prevent a pressure build up.

LIQUID WASTE – VERY LOW LEVEL – 400ml per hour

AIR WASTE – VERY HIGH – CONTAMINATED COMPRESSED AIR

Environmental Issues

AIR

There are no environmental issues by taking the vent pipe to the outside of the building as the air, which is full of salt, is not contaminated as it has not been in contact with any of the products being tested. The vent air is a mixture of air and 5% solution of pure Sodium Chloride and water and this will not harm the environment.

LIQUID

The liquid waste drain from the cabinet should be connected to your drain system as this will be contaminated by corrosion products from the samples on test.

In all C+W Corrosion Cabinets the drain and vent pipe are combined in one pipe 36mm O.D. an exit the cabinet from the base. The drain pipe should be split in to two as close as possible to the cabinet, to incorporate a vent pipe which takes air to outside the building and allows the drain pipe to take the liquid waste to your drains system.

*See Data Sheets on Drain/Vent systems.

No External Wall for Venting

If the only location available has no external wall then answer is to use our "Fog Box". The C+W "Fog Box" is a cleaning system to remove the salt from the air as it leaves the cabinet.

The vent pipe from the cabinet drain is connected to the "Fog Box" and as the salt laden air passes through the box it is washed which converts the salt from the air into the spray water which results in clean air leaving the Fog Box.

*See Data Sheets on Fog Box.

Services Required

All models require electricity, mains water and clean, oil free, filtered compressed air connecting. Please see Operating Manual for full details.

Salt Solution Reservoir

Each cabinet is supplied with an external salt solution reservoir which is connected to the cabinet.

The reservoir is an all plastic tank with a lid which has a capacity 114 litres.

The reservoir has an internal filter which prevents contamination from entering the system and therefore prevents the spray nozzle from blocking. The filter should be replaced every 10 weeks of use (see section on maintenance).

A low level solution alarm can be fitted to a reservoir as an optional extra, which is an audible and visual alarm to warn the user that the level in the reservoir is getting low.

NOTE: This alarm does not switch the cabinet off.

The 114 litre salt solution reservoir will allow constant salt spray testing and the period of time will depend upon the capacity of the cabinet.

Cabinet Capacity	Continuous Salt Spray	Days
100 Litres	"	12
200 Litres	"	11
450 Litres	"	10
1000 Litres	"	8
2000 Litres	"	7

All figures are approximate depending upon flow rate and air pressure used.

Salt Solution Reservoir Maintenance

1. Always keep the top on the reservoir as this prevents contamination of the salt solution.
2. Clean the reservoir walls when empty with a solution of 10% Sodium Hyperchlorite.
3. Change the internal salt solution filter every 10 weeks of use.

Salt Solution

To make the salt solution you should always use "Pure Salt" and de-ionised or de-mineralised water according to the standard that you are operating to.

Most standards specify the type of salt that should be used and we supply "Pure Salt" in 25Kg drums and each drum is supplied with a UKAS Certificate of Analysis.

According to most test standards it is recommended that the water used to make the salt solution is heated to 35°C to remove the carbon dioxide from the water. This prevents air bubbles in the flow meter on the cabinet and also helps with the pH of the salt solution being too high in the collected solution

Collection Rates

Each salt spray standard or test method states the "collection rate" of salt being sprayed into

the cabinet. A typical "collection rate" is between 1ml and 2ml per 80cm² per hour. The collection time should be a minimum of 16 hours.

The collection points in the cabinet should be in at least two positions. One position should be furthest away from the spray nozzle and 10cm away from each cabinet wall.

The second position should be nearest the spray nozzle but a minimum of 20cm away from the nozzle and the cabinet wall.

Collection Vessels

The collection vessels should be plastic funnels which have 100mm diameter, these funnels have an area of 80cm².

Collection Range 1 to 2ml per 80cm ² per hour	Collection Vessel "A" closest to the spray nozzle	Collection Vessel "B" Furthest away from the spray nozzle	RESULT ACTION
Typical 16 hours duration with collection in A or B between 16 and 32ml	16ml	16ml	Within standard but low end of range. Increase pump speed.
"	32ml	16ml	Within standard but high at nozzle area. Increase air pressure only to spread collection.
"	16ml	32ml	Within standard but high away from nozzle. Turn down air pressure.

Position of Samples and Sample Racks

All cabinets are supplied with a set of sample racks to hold panels or product samples.

Special racks or sample rods to suspend samples can be supplied on request.

Position in the Cabinet

It is very important that the sample racks are positioned to the left and right hand side of the cabinet to leave the central area above the spray nozzle clear.

If the sample racks or samples are positioned above the spray nozzle then the correct collection rates cannot be achieved and samples will be sprayed directly with the salt solution and this is not acceptable according to the salt spray standards.

Key Maintenance of Cabinets

1. Clean the salt solution reservoir every 4 weeks with a sterilizing solution of 10% Sodium Hypochlorite. This will prevent the build up of algae on the reservoir walls. Failure to do this could result in the algae blocking the flow metre and spray nozzle.
2. Replace the internal filter in the reservoir every 10 weeks. If the salt reservoir is not clean then the frequency of changing the filter will increase.
3. Change the tube on the peristaltic pump every 10 weeks of use. Failure to do this could result in the tube splitting and then the salt solution would escape onto the pump and floor of the laboratory.

NOTE: All figures are taken from Salt Spray Standard ASTM B117.