

CHEMICAL CLEANING OF EVAPORATIVE CONDENSERS ECOSS - SCALE REMOVAL

ECOSS STAINLESS STEEL EVAPORATIVE CONDENSER

Chemical cleaning of the coil is essential to maintain proper heat transfer and equipment life.

The accumulation of solids in the coil is one of the main factors for the occurrence of localized corrosion. The cleaning frequency should be set according to the water quality and bleed. The equipment maintenance plan recommends a maximum cleaning frequency of the coil of 180 days. It must be carried out by trained staff and/or specialized company.

It is the customer's responsibility to carry out and maintain proper cleaning of the coil.

For the chemical cleaning of the coil of Evaporative Condensers ECOSS, the chemical compound to be used is Sulfamic acid as given below:

Chemical compound: Sulfamic acid

Systematic name: $\text{H}_3\text{NO}_3\text{S}$

Molecular weight: 97.08 g/mL

CAS number: 5329-14-6

Physical Property: Solid (powder)

Color: White

Concentration: minimum 99.5%

Volume required for cleaning = between 50 and 75 kg per 1000 litres of water volume of the tray (this amount may vary according to the scale thickness)

Cleaning procedure

1. Shut down the entire system. Chemical cleaning should take place WITHOUT thermal load and WITHOUT discharging the compressors. Keep the fans off during all cleaning procedure;
2. Remove the water that is in operation, and reset a sufficient volume so that there is no cavitation of the water recirculation pump. Volume below normal operating volume for the use of a smaller amount of chemical;
3. With the recirculation pump in operation, check that all condenser spray nozzles are completely clear. Ensuring that the solution covers all points of the coils to be cleaned;

4. Keep the recirculation pump in operation, and add the product, Sulfamic acid powder, gradually (~1 kg) up to a pH between 0.0 and 1.0. This addition should be carried out close to the pump suction for the best homogenization of the mixture;
5. Perform the pH control every hour, and whenever the pH is higher than 1, gradually add more product (~1 kg);
Maintain this procedure until a maximum chemical recirculation operation time of 16 hours;
6. In order to carry out the complete removal of all the scale, in some points it will be necessary to use water jet, because the coverage of the spray nozzles will not be enough. However, the removal of scale will occur easily, this should be carried out mainly on the sides and near the headboards;
7. After complete removal of scale, stop the water recirculation pump and remove all dirty water from the tray;
8. Carry out the complete cleaning of the tray to remove the scale that will remain on the bottom of the tray;
9. Add clean water, up to a minimum volume so that there is no cavitation of the water recirculation pump;
10. Put the water recirculation pump in operation, for 1 hour for complete neutralization of the acid used;
11. Stop the recirculation pump and remove water used for neutralization;
12. Check that the spray nozzles are not clogged, add clean water to the normal operating volume, and turn on the equipment for normal operation.

Important!

In case there is no complete removal of scale, the same **procedure should be repeated** weekly until it results in a 100% clean coil;
For any non-compliance during the procedure, one should **stop** the operation and contact the technical team of Güntner for full support;
For use of any other product for chemical cleaning of the condenser, the condenser manufacturer should be consulted.

For more information, refer to our technical department.