



Stop Fouling of Heat Exchanger by Automatic Cleaning the Heat Exchanger



The fouling of Heat Exchangers and the resultant cleaning of Heat Exchangers is a common task in many companies. Unfavourable water, high temperatures and impurities in the water are the main reasons for fouling in Heat Exchangers. Fouling in a Heat Exchanger causes less performance in the heating or cooling process. As more fouling is found, as worse the internal heat transfer will get. In tubular Heat Exchangers the fouling happens as well on the tube side as on the shell side of the Heat Exchanger. In a water/water Heat Exchanger the fouling happens on the tube and the shell side in the same way. But in most cases there is water on one side of the Heat Exchanger and product on the other side, either to be cooled or heated. Depending on the kind of product often the fouling in the Heat Exchanger is on the product side worse then on the water side.

Mostly responsible for fouling on the water side of a [heat exchanger](#) are [scaling](#), [corrosion](#) and often also micro organism causing [biofouling](#). The scale is formed mostly by salts solved or solids carried in the water, the corrosion is caused by aggressive water and the bio fouling is caused by algae or bacteria in the water which are forming a biofilm at the surfaces of the Heat Exchanger.

So in a lot of cases where heavy fouling happens in the Heat Exchanger, these have to be cleaned regularly. In order to clean a heat exchanger, the production has to be stopped, the heat exchanger has to be disassembled, and cleaned either manually or by the use of chemicals. To clean such a big heat exchanger, as shown on the picture, easily 7 or 8 days are required.

Merus is either able to lower the fouling in the Heat Exchanger significant or stop the fouling totally. This is done by installing a Merus Ring at the inlet line of the Heat Exchanger, where

the the problem is found. If there is fouling on both side of the Heat Exchanger at both fines a Merus Ring has to be installed. In the case several heat exchangers has to be taken care off and also the cooling loop has to be treated, it is most times not required to install a Merus ring at each feed line of the Heat Exchanger, in such cases there will be several ring installed in the loop, and only on very critical Heat Exchangers there is a Merus RIng required direct ahead the single Heat Exchanger.

Merus is able to improve all cases of fouling, where the material which causes the scale is soluble in the liquid. In the case of water this is for instance lime scale, which is soluble in water. This solubility Merus is increasing, in some cases up to more then ° times its former value. In the case of product, e.g. chemicals or crude oil, same thing is possible, but to what extend, we cant tell without a trial.

Actually Merus is doing automatic cleaning of Heat Exchangers. This we have shown in a lot of cases, where almost fully blocked Heat Exchangers got clean after some time by itself. The fouling of the Heat Exchanger is stopped and at the same time, existing scale is removed. For further information you can check the case studies, how it is done in refineries with [scale or corrosion](#), with [biofouling](#), in [HVAC](#) or at [chemical plants](#).